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ABSTRACT

This information aid presents the latest available statistics on existing size, reviews the research on size, points out the difficulties in arriving at a universally acceptable and supportable recommendation on size, and suggests some recent developments in education that might help alleviate the size drawbacks for the excessively small or large school or school district. Tables present in outline form study findings on elementary, junior high, and senior high school size. A 188-item bibliography is included. (Author)

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Size of Schools and School Districts

For years many educators have believed that there is an optimum size for the elementary school and for individual classes. A number of recent developments--for example, improvements in school plant design, changing patterns of staff utilization, and major modifications in curriculum--provide alternatives which necessitate serious reconsideration of an inflexible position.

The above resolution, adopted in 1966 by the National Association of Elementary School Principals, is indicative of the sentiment in much of recent literature on the question of class and school size. Just as such innovations as large and small group instruction, teacher's aides, programmed instruction, and independent study have shifted concern from class size, so too have they had their effect on the question of school size. Some individuals continue, however, to try to establish a minimum, optimum, and maximum size limit for individual elementary and secondary schools. More concerted effort in the area of size has been devoted to the question of local school districts as the need becomes urgent to eliminate those districts which cannot financially support the new approaches in education.

But what is "small" and what is "large" in schools and school districts? Educators certainly cannot agree on that point. In one study a small school may enroll less than 100 pupils and a large school up to 500 pupils. In another, small is 400 students and large is 2,500 pupils.

The words "ideal," "efficient," or "quality" used when referring to schools and school districts also present problems of definition. When one speaks of "ideal," the question becomes, "Ideal in terms of what?"--the program offered, the money needed to sustain the program, etc.--or "ideal" in terms of who and where?--for vocational students, for the college-bound, for farm youth, for inner city disadvantaged children? "Efficient" is likewise ambiguous. "Efficient" in terms of low cost?--in terms of effort expended to achieve results?--in terms of the lowest dropout rate?--in terms of the number of pupils who enter college? To expound on the difficulties inherent in the word "quality" is unnecessary. Suffice it to say that educators have yet to agree on any definition for or even infallible indicators of the quality of a school or school system.

Single copy, $1. (ERS subscribers, see back page.)

This Information Aid is divided into two sections--one on school size and one on school district size. Each section presents the latest statistics available on existing size, reviews the research on the topic of size, points out the difficulties in arriving at a universally acceptable and supportable recommendation on size, and suggests some recent developments in education which could help alleviate the drawbacks in the school or school district which is excessively small or large. The reader should note that, with few exceptions, the size of a school or school districts refers to the number of pupils it enrolls.

SIZE OF SCHOOLS

Lists of pros and cons of large and small schools appear in many of the references in the bibliography beginning on page 30. Most refer to secondary schools. The debate on the size of elementary schools has not received nearly as much attention as high schools, and the recommendations of researchers and experts do not vary as widely as for high schools. Discussions of the ideal size of an elementary school point out that the smaller schools will provide the security the younger child needs and will keep transit time and distance to a minimum for these children. Certainly the concern over the time a child must spend on a bus traveling to and from school is justified. Considering this concern, the American Association of School Administrators' Commission on School District Reorganization (7)* proposed the following limitations of distance to and from school:

	Walking distance	Travel time on bus
Elementary	3/4 of mile	½ hour
Junior high	1½ miles	1 hour
Senior high	2 miles	1 hour

On the other hand, it is also argued that the large school can provide more specialized services for the children. In its 1965 "Statement on Elementary School Size," the Division of Instruction for the Arlington County, Virginia, Public Schools listed factors that "cause the small elementary school to be considered a less effective base for instructional activities and a less efficient administrative unit when compared with the elementary school that can offer two or more classroom groups at each grade level." (11:19-20). The factors cited were:

1. Problems of instruction--pupil organization
   a. Grouping. Each class contains a total range of achievement--the opportunity to assess the individual needs of students and reduce the differences in a class is not present. This is true initially and as the year continues; regardless of the change in children, it continues to be true.
   b. Class size. There may be very large classes or very small classes--combination classes are not readily formed. This is true as the year starts, and if student personnel change during the year and are added to the already large class, there is no possibility for relief.
   c. Retention. If students are retained they spend the second year in the same grade with the same teacher.
   d. There is no opportunity for matching student needs with teacher strengths.
   e. An elementary student is placed in contact with only one teacher. Opportunities for cooperative teaching, which allows teachers to complement each other's strength, are limited in a small school.
2. Problems of instruction--teaching staff
   a. Each teacher works as the only teacher of the grade to which he is assigned--has no one at the same grade level to plan with, to share problems with, etc.

* Figures in parentheses refer to bibliography beginning on page 30.

b. Inservice activities are difficult to plan. The teaching staff is too small to plan for as a unit; they must usually combine with another school.

c. Although we need to assign the very best teachers to small schools because of the wide range of abilities in each class and the comparative isolation, many good teachers do not like assignments in small schools. Teachers prefer the stimulation of a large daily contact with other professionals.

d. Teachers are asked to assume more responsibilities--both as representatives of the school to county groups, and as sponsors to co-curriculum activities.

3. Problems in providing services

a. Clerical. The basis for providing secretarial help to teachers is not sufficient for continuous service.

b. Itinerant services. Art, music, speech therapy, reading, school-based physical education, and school nurse are very difficult to schedule on "like time" basis to a small school. Much travel for helping teachers is required, frequency of contact is reduced, and space for these people to work is usually limited.

c. Library is not staffed full time.

4. Problems in administrative staffing

a. It is difficult to hold principals. Principals who are assigned to small schools are always hoping to get a larger school. They move when this opportunity arises, creating a higher rate of administrative turnover in the small school.

b. The principal, if assigned to two schools, is not always at the school in which he is needed.

c. The principal, if also assigned teaching responsibilities, is not available to talk to parents, teachers, etc., when teaching.

d. Secretarial services are part-time.

e. Cafeteria operation presents difficulties of small-unit operation.

5. Problems to school system

Recognizing the problems listed above, more time, attention, and services are concentrated on the small school than on groups of similar size located in large schools. The small school operates to some extent at the expense of the larger schools.

When considering the junior or senior high school, the factors multiply. Herrick, et al, (77) lists the following as desirable and undesirable factors associated with the large high school:

Favorable

1. A greater variety of courses is offered, and content and method are adapted to the varying abilities of different groups of pupils.
2. Programs of pupil activities are more extensive and balanced.
3. Lunchrooms, health examinations, counseling, psychological assistance, and other special services are more adequate.
4. In general, recruiting and holding qualified teachers is more successful.
5. Building facilities and equipment of certain types are provided at reasonable cost.

Unfavorable

1. Administration becomes more difficult.
2. Unified staff planning and attack upon school-wide problems becomes more difficult.
3. Tensions and fatigue of the teachers increase because of the activity and noise, the formal operating procedures, and the conflicting demands upon their time and energy.
4. The focusing of effective attention upon the problems and needs of individual pupils becomes increasingly difficult.
5. The pupils become lost in the crowd.

School officials examining the question of "how large should we build our next school?" have, of course, to consider pros and cons such as are cited above, but more compelling will be the need of the district for additional pupil space. That is, they will examine such questions as the degree of overcrowding now present, the projections of school age population in future years, and the expected

life of buildings currently in use. The number of pupils to be housed is the greatest determinant of relative physical size, but additionally the planners will necessarily consider the type of programs, curricular and extracurricular, to be offered; the facilities to support the program; the square footage necessary for the facilities; and the size of the site for the school. They also have two independent sources to guide them--the size of schools other systems are building and the size of schools recommended by experts and researchers.

SIZE OF EXISTING SCHOOLS

As might be expected, larger school systems build larger schools, and schools in the central city tend to be larger than suburban and rural schools. Table A shows the latest figures available on the average size of elementary and secondary public schools in the United States, by size of school system, metropolitan status, and region of the United States. Unfortunately, there are no recent figures on the number of schools of particular sizes in the United States. These figures have never been available for elementary schools, and the most recent figures on secondary schools are for the school year 1958-59, published by the U. S. Office of Education (Table B).

In the school year 1967-68, the Planning and Research Department of the Rochester, New York, City Schools (151), collected the data shown in Table C on the size of high schools in larger school

(Continued on page 7)

Table A

AVERAGE NUMBER OF PUPILS PER SCHOOL, BY SYSTEM ENROLLMENT SIZE, METROPOLITAN STATUS, AND REGION, FALL 1968

Enrollment size, metropolitan status, and region of school systems	Average number of pupils enrolled in:		
	Elementary	Secondary	All schools
System enrollment size:			
25,000 and over	647	1,440	818
10,000 - 24,999	482	1,120	611
5,000 - 9,999	450	1,086	569
2,500 - 4,999	386	824	471
300 - 2,499	313	346	319
Under 300	64	88	68
Metropolitan status:			
Metropolitan, central	600	1,441	778
Metropolitan, other	486	942	588
Nonmetropolitan	279	464	319
Region:			
North Atlantic	452	1,103	578
Great Lakes and Plains	339	616	407
Southeast	449	791	508
West and Southwest	405	670	472
Average enrollment, all schools	401	751	479

NOTE: Average for elementary schools and secondary schools columns are slightly exaggerated because the calculations include pupils in, but not the number of, combined elementary and secondary schools.

SOURCE: U.S. Department of Health, Education, and Welfare, Office of Education. Statistics of Local Public School Systems--Schools, Pupils, and Staff, Fall 1968. Washington, D.C.: Government Printing Office, 1970. p. 16

Table B

NUMBER AND PERCENT OF PUBLIC SECONDARY DAY SCHOOLS, BY ENROLLMENT, 1930 TO 1959

Enrollment	1930		1946		1952		1959	
	Number of schools	Percent of total	Number of schools	Percent of total	Number of schools	Percent of total	Number of schools	Percent of total
1	2	3	4	5	6	7	8	9
1-9	a/	a/	234	1.0%	184	0.8%	39	0.2%
10-24	2,077	9.3%	975	4.0	640	2.7	216	0.9
25-49	3,866	17.4	2,685	11.1	1,896	8.0	1,010	4.2
50-74	3,521	15.8	3,116	12.9	2,311	9.7	1,478	6.1
75-99	2,543	11.4	2,547	10.6	2,086	8.8	1,513	6.2
100-199	4,603	20.7	5,917	24.5	6,025	25.4	5,210	21.5
200-299	1,633	7.4	2,641	11.0	3,103	13.0	3,386	14.0
300-499	1,478	6.7	2,370	9.8	3,106	13.1	4,009	16.5
500-999	1,421	6.4	2,200	9.1	2,757	11.6	4,528	18.7
1,000-2,499	934	4.2	1,303	5.4	1,536	6.5	2,652	10.9
2,500-4,999	134	0.6	122	0.5	97	0.4	181	0.7
5,000 or more	27	0.1	12	0.1	5	b/	4	b/
	22,237	100.0%	24,122	100.0%	23,746	100.0%	24,226 c/	100.0%

SOURCE: U.S. Department of Health, Education and Welfare, Office of Education. "Public Secondary Schools." Statistics of Education in the United States. 1958-59 Series No. 1. Washington, D. C.: Government Printing Office, 1961. p. 7.

a/ Data not tabulated.
b/ Less than 0.05 percent.
c/ Includes 36 schools in Alaska but none in Hawaii.

Table C

SIZE OF HIGH SCHOOLS IN SCHOOL DISTRICTS WITH 50,000 OR MORE PUPILS, 1967-68

School district and enrollment	No. of high schools	Average size	Range
Atlanta (118,730)	23	1489	703-2581
Baltimore (199,983)	13	2495	...
Birmingham (69,941)	15	1261	121-2158
Boston (92,892)	16	1271	...
Buffalo (72,639)	14	1334	191-2387
Chicago (551,635)	56	2546	...
Cincinnati (88,753)	8	2482	1260-3490
Cleveland (153,350)	13	1985	1049-3220
Columbus (104,341)	14	1358	415-1986
Dade County (217,906)	19	2455	210-4036
Dallas (150,331)	22	1501	177-3455
Dayton (59,951)	10	1626	778-2271
Denver (96,260)	9	2214	1072-2879
Detroit (295,000)	22	2333	1417-3480
Duval County (120,988)	13	1740	396-2301
Fort Worth (83,973)	13	1226	302-2427
Houston (235,174)	21	1872	457-3325
Indianapolis (108,161)	11	2337	...
Kansas City,Mo.(74,523)	10	1842	1152-2388
Long Beach (98,423)	7	2328	107-3890
Los Angeles (645,059)	56	2374	46-4270
Louisville (51,472)	7	1490	...
Memphis (124,316)	22	1686	598-3123
Milwaukee (128,777)	15	1879	836-3058
Minneapolis (71,569)	11	1643	959-2473
Nashville (93,450)	25	1119	618-1822
New Orleans (105,718)	15	2784	357-2030
New York (1,065,909)	60	3467	1472-5404
Newark (79,712)	8	1750	...
Norfolk (56,425)	5	2187	1772-2433
Oakland (64,647)	6	2131	...
Oklahoma City (73,967)	13	1469	86-3015
Omaha (61,397)	7	1852	...
Philadelphia (288,476)	22	2717	327-4440
Pittsburgh (80,697)	15	1639	387-3328
Portland (78,499)	13	1863	513-2804
St. Louis (116,795)	12	2037	...
San Antonio (77,908)	9	1877	...
San Diego (125,487)	11	2124	1055-3561
San Francisco (95,000)	10	2095	499-2918
Seattle (95,245)	12	1768	1018-2132
Toledo (61,240)	10	1656	...
Tulsa (77,193)	9	1731	916-2698
Washington,D.C.(145,820)	11	1746	1347-2539
Wichita (69,735)	6	2300	...

SOURCE: Rochester City Schools. Size of High Schools in Large City School Districts, 1967-68. Rochester, N.Y.: Public Schools, January 1968. 4 p.

Table D

GUIDELINES DEVELOPED BY SOME LARGER LOCAL SCHOOL SYSTEMS ON THE SIZE OF SCHOOLS, 1970

School system and fall 1970 enrollment	Number of pupil or teachers to be accommodated in:			
	Elementary	Middle school	Junior high	Senior high
ATLANTA, GA. (105,119)	750	1000	...	1800
BALTIMORE COUNTY, MD. (Towson) (133,670)	600	1200	1200	1600
BUFFALO, N. Y. (70,098)	...	65 teachers	...	...
CHICAGO, ILL. (577,652)	1200 maximum	1500 maximum	...	2000-3500 maximum (depending on type)
DALLAS, TEXAS (160,230)	750-1000	1200-1500	1200-2000	2000-3500
DENVER, COLO. (95,754)	800	...	1500	2500
KANSAS CITY, MO. (70,726)	600	...	1200	1600
LOS ANGELES, CALIF. (642,895)	850	...	1900	2600
LOUISVILLE, KY., city schools (52,448)	30 teachers	50-60 teachers	...	60-80 teachers
MEMPHIS, TENN., city schools (144,147)	20 teachers	...	30 teachers	63 teachers
NORFOLK, VA. (56,503)	800-900	...	1200	2000
OMAHA, NEB. (62,000 est.)	560	...	1400	1400
PITTSBURGH, PA. (72,924)	27-34 teachers (810-1020 pupils)	46-54 teachers (1380-1620 pupils)	...	82-100 teachers (2460-3000 pupils)
RICHMOND, VA. (45,245)	600-750	900-1200	900-1200	1000-1500
SAN ANTONIO, TEXAS (75,262)	30 teachers	...	70 teachers	140 teachers
SAN DIEGO, CALIF. (130,386)	700	...	1500	2000
SEATTLE, WASH. (84,669)	450	...	1200	1500-1800
TULSA, OKLA. (77,737)	600-800	...	1000	1500-2000
WICHITA, KANS. (63,811)	600-1200	...	900-1400	1800-3000

SOURCE: Dade County Public Schools, Physical Plant Division. Instructional Equipment and School Plant Construction Survey of the Major School Systems Thru-Out the United States. Miami, Fla.: Public Schools (1410 N.E. 2nd Ave., 33132), September 1970. p. 1-28.

systems. The information in the table shows that, even among the larger cities, there is a wide range in the size of high schools, from less than 100 pupils to over 5400 pupils.

LOCAL GUIDELINES ON SCHOOL SIZE

Some of the larger school systems in the country, which at any given time usually have one or more schools in the planning stage, have developed their own guidelines for determining the size of school to be built.

Table D, on page 6, lists some guidelines which were reported to the Dade County School System in a survey conducted in May 1970 (45). While it is true that the largest school system listed (Chicago) also has the highest recommendations in each category, smaller systems have similar recommendations (Dallas and Wichita). Several of the systems recommend smaller elementary schools than does the smallest system shown (Richmond).

RESEARCH ON SCHOOL SIZE

Tables E, F, and G, pages 8-15, present in outline form a number of recommendations on the size of elementary, junior high, and senior high schools which have been made over the past 50 years. Some are based on empirical research and others on the personal experiences of the author. The annotations are arranged chronologically by date of publication, and the complete references can be found in the bibliography beginning on page 30. When the researcher did not propose a minimum, maximum, or optimum school size, the size favored by his findings is noted. It should be pointed out that, particularly in the case of high schools, not only did the recommendations on size show that recommended figures tend to be larger in the later studies, but that the authors of later studies were less likely to recommend a size limit. The third column of each table lists the factors selected for study by the author in order to arrive at a size recommendation. The location, size, number, and types of schools in each study appear in the last column.

The various factors studied, in and by themselves, create a number of difficulties in evaluating recommendations the authors propose. The input, process, and output factors most commonly isolated for study deal with the following areas: per pupil expenditures; achievement of pupils in high school; achievement of pupils in college; educational program offered; auxiliary services provided; professional staff preparation and experience; staff and pupil relationships; and the extra-curricular program. No one study includes all of these factors, and in fact, some critics even question whether these are the real indicators of a school's quality or effectiveness. One might also question whether there are perhaps hundreds of additional factors which might be studied in order to arrive at an "ideal" school size. Researchers are quick to recognize, too, that when studying one factor, correction has to be made for other factors which might influence the results of their evaluations. A simplistic example of such an error would be to compare achievement test results between two schools at extreme ends of a size spectrum, without consideration of the background and IQ of the students at each school.

The universe of the study weakens the validity of recommendations made by some authors. For example, if an author includes in his study only schools with enrollments of 500 or less, he naturally cannot arrive at a recommendation of 1,200 pupils based on his research. The location of the schools, which greatly affects the type and number of pupils attending, may also affect the acceptability of his recommendations. For instance, there is little demand for a program of agricultural education in a mid-Manhattan high school, and little demand for a program of vocational education in a school system where historically 97 percent of graduating seniors enter college.

Some of the difficulties involved in using the various input, process, and output factors to determine ideal school size are discussed in the paragraphs which follow Tables E, F, and G.

(Continued on page 16)

Table E

SUMMARY: RECOMMENDATIONS IN PROFESSIONAL LITERATURE ON THE SIZE OF ELEMENTARY SCHOOLS
(Figures in parentheses in first column refer to bibliography beginning on page 30).

Source	Recommendations on size	Educational factors studied	Universe of study
Dawson, 1934 (46)	240 pupils, minimum	...	Review of research and summary of expert opinion
National Commission on School District Reorganization, 1948 (121)	Minimum of 175 pupils and 7 full-time teachers in grade K-6. More desirable is 300 or more pupils with 12 full-time teachers	Various factors	Literature, state studies, and Commission deliberations
National Education Association, Research Division, 1949 (129)	457 pupils	...	Median recommendation of 1,143 respondents in systems in cities of 2,500 or more population
Engelhardt, Engelhardt, and Leggett, 1953 (56)	12-15 classrooms, maximum; 15 staff members, maximum; 350 children in grades K-6 (2 sections per grade)	Pupil learning; parent participation; staff planning	Observations of Dr. Gordon McKenzie, Teachers College, Columbia University
MacVittie, 1954 (106)	300-400 pupils, maximum	Psychological impact of school environment upon children	...
National Education Association, Department of Elementary School Principals, 1954	Maximum class size of 25 and school size of 500.	...	Resolution
Nation's Schools, 1954 (130)	70 percent of responding superintendents favored 250-500; 50 percent favored 350-500 pupils	...	Superintendents' opinion poll
Theophilus, 1954 (166)	No recommendation; achievement increased as size of schools increased	Pupil achievement as measured by the Iowa Tests of Basic Skills	Iowa elementary schools with 200 or more pupils
Hubbard, 1959 (82)	400-800 pupils	...	Review of literature
Robinson, 1961 (150)	Median response favored 421 pupils as most desirable size	Effective instruction, supervision, and administration	Opinion poll of 721 elementary principals conducted by the NEA Research Division
Sollars, 1962 (159)	300-499 pupils	Cost; institutional, principal, program, pupil, and teacher indicators	Survey of 30 principals, 70 teachers, and approximately 1,000 pupils in 30 elementary schools (grades 1-6) in central Ohio, ranging in size from under 100 to over 900 pupils
Strong, 1964 (164)	Size of elementary school relatively unimportant when socioeconomic rank and IQ levels of pupils are comparable. Teachers prefer "medium-sized" schools	Pupil achievement; teacher preference	1,054 grade 6 pupils in 17 large schools in Hamilton County, Ohio; sample of grades 3 and 6 teachers in same schools

Table E *(Continued)*

Source	Recommendations on size	Educational factors studied	Universe of study
George Peabody College for Teachers, 1965 (66)	One teacher per grade--two sections in grade 7. Minimum enrollment of 240. Optimum would allow 3 sections per grade; 500-720 pupils; travel time not to exceed 1 hour each way	Efficiency in operation; per pupil costs; teacher qualifications; teacher assignments in major fields; curriculum offerings; special services; pupil achievement; counseling and library programs; percentage of graduates entering college	Georgia school systems and schools
Morphet, Johns, and Reller, 1967 (116)	200-700 pupils in K-6	...	...
Purdy, 1968 (147)	Minimum of 300; optimum of 500; maximum of 750 (Nursery to grade 8)	...	Survey of Ohio Department of Elementary School Principals members
Whitt, 1968 (182)	Minimum of 300-500 pupils in K-6; maximum of 900	Business management	....
Adams, Kimble, and Marlin, 1970 (1)	No recommendation; amount of variation explanable by size was slight	Teaching styles; school size; and organizational level	Questionnaire to 4,345 teachers in 371 schools, ranging in size from 5 to 4,200 pupils

Table F

SUMMARY: RECOMMENDATIONS IN PROFESSIONAL LITERATURE ON SIZE OF JUNIOR HIGH SCHOOLS
(Figures in parentheses in first column refer to bibliography beginning on page 30.)

Source	Recommendations on size	Educational factors studied	Universe of study
Dawson, 1934 (46)	245 pupils minimum	...	Review of research and summary of expert opinion
National Commission on School District Reorganization, 1948 (121)	Minimum of 300 pupils, or 75 of each age group, and 12 full-time teachers	Various factors	Literature, state studies, and Commission deliberations
National Education Association, Research Division, 1949 (129)	521 pupils	...	Median recommendation of 914 respondents in school systems in cities of 2,500 or more population
Crocker, 1960 (43)	No specific recommendation; teacher preparation is best in high schools enrolling 501-750 pupils	Teacher preparation; variety of subjects offered.	Questionnaire to teachers and administrators in 2-year and 3-year junior high schools in Alabama
Garcia, 1961 (64)	1,200 optimum; minimum of 1,000, but no serious modifications down to 750; 1,400 as upper limit; but under no condition more than 1,800 pupils	Curriculum offerings; student activities; staff qualifications; teacher-pupil relationships	Visits to 20 grade 7-9 junior high schools in Southern California; surveys of 2,028 pupils, 894 teachers, and 210 principals
Street, Powell, and [illegible]mblen, 1962 (163)	300 or more pupils	Student achievement	Grade 7 and 8 students in two Eastern Kentucky mining districts, enrollments ranging from under 100 to 836

Table F (Continued)

Source	Recommendations on size	Educational factors studied	Universe of study
Vars, 1966 (177)	750-1,100 pupils	...	Recommendation of NASSP Committee on Junior High School Education, after seeking opinions of junior high school principals
Morphet, Johns, and Reller, 1967 (116)	300-900 pupils	...	...
Whitt, 1968 (182)	Minimum of 100 in grade 9; 300-500 in grades 7-9	...	...
Adams, Kimble, and Marlin, 1970 (1)	No recommendation; amount of variation explanable by size was slight	Teaching styles; school size; and organizational level	Questionnaire to 4,345 teachers in 391 schools ranging in size from 5 to 4,200 pupils

Table G

SUMMARY: RECOMMENDATIONS IN PROFESSIONAL LITERATURE ON THE SIZE OF SENIOR HIGH SCHOOLS
(Figures in parentheses in first column refer to bibliography beginning on page 30.)

Source	Recommendations on size	Educational factors studied	Universe of study
Thornberg, 1924 (167)	No recommendation; results favor minimum of 100 pupils	Quality of college work	Freshmen at State College of Washington in 1921-22
Nanninga, 1931 (118)	500-1,000 pupils	Per pupil expenditure	California high schools
Ferriss, 1933 (59)	Minimum of 350-400 pupils in 6-year high school	Curriculum offerings	Review of literature
Dawson, 1934 (46)	6-year high school--210 pupils, minimum; senior high school, 175 pupils, minimum	...	Review of research and summary of expert opinion
New York State Regents' Inquiry (in Spaulding), 1938 (160)	Minimum of 300 pupils	...	Survey of New York state high schools
Washington State Planning Council, 1938 (180)	No recommendation; results favor schools with more than 150 pupils, to a limit of 1,500 pupils	Per pupil expenditure	Washington state high schools
McLure, 1948 (110)	Minimum of 700; 1,000-1,200 may be necessary to provide all desired services. Maximum enrollment not critical factor	Per pupil cost; curriculum offerings	Mississippi high schools
National Commission on School District Reorganization, 1948 (121)	Minimum of 300 pupils, or 75 in each age group, and 12 full-time teachers	Various factors	Literature, state studies, and Commission deliberations
gelhardt, Engelhardt, d Leggett, 1949 (57)	1,200-3,000 pupils	Curriculum offerings	...

Table G *(Continued)*

Source	Recommendations on size	Educational factors studied	Universe of study
National Education Association, Research Division, 1949 (129)	Median recommendation of 677 pupils	...	Survey of 1,127 respondents in school systems in cities of 2,500 or more population
Oliver, 1949 (136)	500-700 pupils most desirable	...	Opinions of a group of education experts and group of superintendents and/or principals familiar with small high schools
Gray, 1950 (68)	400 or more pupils	Student achievement; staff qualifications; extracurricular activities; curriculum offerings	40 Iowa public secondary schools ranging in enrollment from less than 150 to more than 1,000 pupils; questionnaire to 20 seniors from each school
Woodham, 1951 (186)	Minimum of 500 pupils in grades 7-12	Curriculum offerings; per pupil cost	Florida high schools
Commission on Illinois School Problems, 1953 (37)	Minimum of 300 pupils	Per pupil cost	609 Illinois high schools
Edmonson, Roemer, and Bacon, 1953 (52)	Minimum of 1,500; maximum of 2,000 pupils	...	"Observation, study, and analysis of a number of schools"
Hartung, 1953 (75)	No significant difference by size	Dropout rates	22 Illinois schools outside the Chicago area
Nation's Schools, 1954 (130)	37 percent of respondents favored 150-400; 31 percent, 400-750; and 24 percent 750-1,200	...	Superintendents' opinion poll
Brown 1956 (23)	1,500-1,800 pupils	Curriculum offerings; student activities	Interviews in 14 4-year high schools in Southern California, ranging in enrollment from 446 to 3,814; opinion poll of all principals and superintendents of 4-year high schools and to professors of secondary education
Livingston, 1956 (105)	Optimum of 2,000 pupils	Needs of particular communities	Review of literature
Cornell, 1957 (42)	Optimum of 1,500 pupils	Space allocations	Experience with actual space budgets per pupil
Tyson, 1957 (172)	293-490 pupils	Teacher-pupil relationships	1,255 high school pupils and 135 teachers in 28 white rural 12-year schools with enrollments of fewer than 50 to more than 1,400 pupils
Woods, 1957 (187)	1,200-1,599 pupils	Curriculum offerings	Four questionnaires administered to random sampling of parents, students, teachers, and administrators in 17 4-year high schools with enrollments from 800 to more than 2,000 students, in the Bay Area of California
rson, Page, and h, 1958 (8)	Size is not an important factor	Academic achievement of high school seniors in upper 10 percent of class	Representative sample of 1,445 high school seniors in Kansas in 1951-52

Table G *(Continued)*

Source	Recommendations on size	Educational factors studied	Universe of study
Andrews, 1958 (10)	1,200-1,599 pupils	School-community relationships; student affairs	17 4-year high schools in Bay Area of California, with enrollments from 800 to more than 2,000; sampling of 10 percent of parents, 10 percent of students, 50 percent of teachers, and 100 percent of administrators
Dickenson, 1958 (49)	No recommendation; withdrawal rate greater among graduates of smaller schools; however, when data are adjusted for mental ability, size of school was of little consequence	Retention rate in college	617 students who had withdrawn from the University of Arkansas
Opstad, 1958 (138)	No significant difference by size of school	School holding power	Entering 9th grade classes of 1950, 1951, and 1952; 786 dropouts from 73 public high schools in Iowa
Shapiro, 1958 (155)	1,200-1,600 pupils	Staff relations	Four questionnaires administered to random sampling of parents, teachers, students, and administrators in 17 4-year high schools in the Bay Area of California
Bush, 1959 (25)	No recommendation; "no consistent pattern of significant differences that can be related to any one size category."	Guidance program	17 4-year high schools in Bay Area of California, with enrollments of 800 to more than 2,000 pupils
Conant, 1959 (40)	Minimum of 100 pupils in graduating class	Curriculum offerings	103 high schools in 26 states
Hoyt, 1959 (81)	No recommendation; differences were small and not significant	Pupil achievement in college	884 freshman entering Kansas State College in fall 1956, grouped by size of high school--25 or less to 251 or more
Kowitz and Sayres, 1959 (97)	688-756 pupils	Per pupil expenditures	New York state secondary schools
Menozzi, 1959 (111)	No recommendation based on all factors; various factors favor various categories of size	Guidance services; community use of plant and facilities; student morale; teacher morale	12 randomly-selected high schools, enrolling 750-3,500 pupils, which were members of the North Central Association of Colleges and Secondary Schools
Ohio Education Association Education Council, 1959 (135)	No recommendation; students from schools with over 250 pupils had better college records	Pupil achievement in college	College students who attended Ohio high schools, grouped by two sizes--under 250 and over 250 pupils
Smith, Clifford, 1960 (157)	800-1,200 pupils	Educational opportunity: pupil factors; staff qualifications; special services	Basic data from 1959-60 annual principals' reports to Ohio State Department of Education; additional data from questionnaires to 404 principals of 3- and 4-year high schools whose reports were available

Table G *(Continued)*

Source	Recommendations on size	Educational factors studied	Universe of study
Collingsworth, 1961 (36)	Minimum of 400 pupils	Staff qualifications	Sample of 364 teachers in 11 predominantly white Arkansas high schools ranging in size from less than 150 to more than 800 pupils
Harmon, 1961 (74)	Confirms Conant's (40) recommendations; 100 or more in graduating class	Pupil achievement in doctoral programs	All 1958 doctorate recipients from American universities
Jantze, 1961 (90)	400-799 pupils	Scholastic achievement	Sample of 46 secondary schools which administered the Iowa Tests of Educational Development, sizes ranging from below 100 pupils to 800 or more
Smith, Fay, 1961 (158)	No recommendation; seniors from schools in three largest classifications scored higher than others	Pupil achievement, as measured by American College Test scores	Seniors from Arkansas high schools placed in five enrollment categories: 150 or less, 200-350, 400-550, 600-750, and over 750
Weaver, 1961 (181)	No recommendation; study favors 500 as a minimum	Staff qualifications; student achievement in college; school services	117 North Carolina high schools ranging in size from less than 100 to over 750 pupils; 100 college students who were freshmen in 1956, chosen on basis of size of high school
Barker, et al, 1962 (13)	No recommendation; study favors small schools of less than 300 students	Extraclass activities	Records of athletic competition participation in 218 eastern Kansas 4-year high schools with enrollments of 18-2,287; senior activities recorded in yearbooks from 36 eastern Kansas high schools, ranging in size from 34 to 2,287 pupils; junior classes in four small (83-151 enrollment) and one large high school (2,287 pupils)
Flanagan, 1962 (63)	No recommendation; size not closely related to pupil achievement	Pupil achievement	Senior classes of 206 public high schools in towns between 2,500 and 25,000 in population, that had only one high school
Mayo, 1962 (108)	1,500-2,000 pupils; 2,000 is optimum	Curriculum offerings	Eight 4-year high schools located on the Peninsula, San Mateo County, California, and enrolling 629-2,777 pupils
Trump, 1963 (168)	1,200-2,000, or multiples thereof	Organization for large group instruction	...
Kleinert, 1964 (95)	No recommendation; data seems to support schools of no more than 1,500 pupils	Student participation in extracurricular activities	63 southern Michigan high schools with enrollments in upper three grades from 87 to 3,063
Morris, 1964 (117)	No recommendation; data on different factors favors different enrollments	Course offerings; pupil-teacher ratios; special services; class size; professional preparation	3,727 high schools in Alabama, Arkansas, Georgia, Kentucky, Louisiana, Mississippi, South Carolina, Tennessee, and Virginia (1,757,747 students and 75,188 teachers)

Table G *(Continued)*

Source	Recommendations on size	Educational factors studied	Universe of study
Patterson, 1964 (143)	No recommendation; larger schools provided superior professional personnel	Staff qualifications--experience, training, certification, salaries	13,707 professional personnel (including librarians and counselors) in schools in 9 Southern states, 1962-63.
George Peabody College for Teachers, 1965 (66)	Minimum of 100 pupils in grade 12; 3 teachers for each grade; 3 times as many units offered as are required for graduation	Efficiency in operation; per pupil costs; teacher qualifications; teacher assignments in major field; curriculum offerings; special services; pupil achievement; counseling and library programs; percentage of graduates entering college.	Georgia schools and school systems
Monahan, 1965 (114)	2,000 pupils, maximum	Teacher-pupil relationships	10 boys and girls (5 each) from 10th grade in 15 Los Angeles high schools with mean enrollments of 1,604, 2,074, and 2,887
Schloerke, 1965 (154)	1,500-1,999 pupils	Staff preparation; teaching assignments	More than 2,000 teachers in 33 Michigan secondary schools with enrollments of 500 to more than 3,000 pupils
Jackson, 1966 (88)	Schools with grades 7-12: 950-1,300 pupils; schools with grades 8-12: 810-1,150 pupils; schools with grades 9-12: 890-1,250 pupils; schools with grades 10-12: 700-950 pupils	Teacher preparation, certification, and experience; extent of curriculum offerings; teaching load	4,773 public senior high schools in Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, and Virginia, ranging in size from 13 to 4,169 pupils
Riew, 1966 (149)	1,600 pupils, minimum, based on per pupil expenditure factor	Per pupil expenditure; curriculum offerings; staff qualifications	Wisconsin high schools
Morphet, Johns, and Reller, 1967 (116)	400-1,500 pupils in grades 10-12	...	...
Rajpal, 1967 (148)	No recommendation; largest schools had more experienced and better prepared staff; wide range among other enrollment groups	Selected measures of educational quality and expenditure	459 public high schools in Iowa in 1964-65, divided into 8 enrollment groups, ranging from less than 100 to more than 800 pupils
Kiesling, 1968 (92)	No recommendation; little evidence in the study that larger high schools are more efficient; considerable evidence that they are less efficient	Pupil achievement	Project Talent data bank (63) on 775 public high schools
Maxey and Thomas, 1968 (107)	No recommendation; curriculum innovation is evidenced in schools of 200-1,500 pupils, technical innovations in schools with over 500 pupils	Curriculum, technical, and organizational innovations	Iowa high schools, using statewide data; survey of North Central Association-accredited schools in Iowa, Missouri, Nebraska, and South Dakota
Montgomery, 1968 (115)	Minimum of 500 pupils in vocational high schools	...	South Dakota school system reorganization
, 1968 (147)	300 pupils in grade 12	...	Ohio Association of Secondary School Principals and Ohio ASCD conclusion

Table G *(Continued)*

Source	Recommendations on size	Educational factors studied	Universe of study
Tower (in Shoemaker), 1968 (156)	For vocational high school, minimum of 600 vocational pupils (grades 11 and 12) in a joint vocational or intermediate district of 15,000 students; maximum of 1,700 pupils in 42,000 pupil district	Breadth of program; per pupil cost; pupil travel time	...
Whitt, 1968 (182)	In grades 10-12, 450-1,800+ students	Business management	Review of research and personal knowledge of business management
Baird, 1969 (12)	No recommendation; high school and college achievement are related negatively to high school and college size; little carry-over of high achievement from high school to college	Pupil achievement in high school and college	3 percent sample (21,371) of college applicants who took the assessment of the American College Testing Program between November 1965 and October 1966, in graduating classes of less than 25 to over 400 pupils; follow-up study of American College Survey of 5,123 sophomores in 1965
Clements, 1969 (34)	No recommendation; data indicates that a graduating class of 1-25 has the advantage unless potential, as measured by high school rank, is considered; no test made on that basis	Pupil staying power in college	1965, 1967, and 1968 freshmen classes at Wisconsin State University
Minnesota Public School Survey Committee, 1969 (113)	No recommendation; larger schools scored higher but also had higher educational attainment of fathers	Pupil achievement; educational level and occupation of fathers	All Minnesota public high school juniors who had taken the Minnesota Scholastic Aptitude Test in 1966-67, in schools ranging from less than 225 pupils to over 2,026 pupils
Adams, Kimble, and Marlin, 1970 (1)	No recommendation; amount of variation explanable by size was slight	Teaching styles; school size; and organizational level	Questionnaire to 4,345 teachers in 391 schools ranging in size from 5 to 4,200 pupils
Cashen, 1970 (30)	301-500 pupils	College achievement of pupils	206 first semester freshmen in general psychology at Illinois State University
Rosenberg, 1970 (152)	No recommendation; data seems to favor 2,000 as optimum	Per pupil expenditure	58 California secondary schools which had been investigated for accreditation by the Western Association of Schools and Colleges in 1966-67. Enrollments ranged from under 500 to 3,500
Turner and Thrasher 1970, (170)	500-1,500 pupils	Curriculum development	Personal experience and review of literature

Per pupil expenditure. While there can be no argument that it costs the same to employ a teacher whether he teaches five or 25 pupils and that more elaborate educational offerings cost more primarily because of the additional teacher-specialists that must be hired, the use of per pupil costs as an indicator of quality is open to question. The problem with this measure is well-illustrated by the data in the following table, which lists certain factors for each of the ten "top" high schools in America, as determined by a panel of educators in 1968. (99)

School	No. of pupils	Per pupil expenditure	Teachers with M.A. or above	Percent pupils to 4-yr. colleges	Percent pupils to 2-yr. colleges
Evanston Township (Ill.) High School	5,000	$1,280	79%	75%	...
Abington (Pa.) High School	3,800*	800	75	58	21%
Beverly Hills (Calif.) High School	2,037	1,050	80	61	34
John Marshall High School, Portland, Oreg.	2,200	700	50	32	20
Melbourne (Fla.) High School	2,050	450	40	55	25
New Trier High School, Winnetka, Ill.	5,724*	1,300	81	84	6
Newton (Mass.) High School	4,243	980	62	58	27
Nova High School, Ft. Lauderdale, Fla.	3,000	450	59	65	27
Ridgewood High School, Norridge, Ill.	1,365	960	51	41	14
Roy (Utah) High School	1,562	552	28	61	11

Seven of the above schools had a higher per pupil expenditure in 1967-68 than $655--the national average for all schools (128). Some of this is due no doubt to the fact that the cost of salaries and other items in the school budget are higher in certain parts of the country. Additionally, it is commonly recognized, even in many state aid formulas, that secondary schools require a higher per pupil expenditure than elementary schools. The most prominent of the reasons for this concerns the diversity in the secondary program as compared with the elementary school--in curriculum and in extra-curricular activities. Thus more specialized teachers and more specialized equipment must be provided. Also, as reported by the NEA Research Division (126:56), secondary teachers are more likely to hold advanced degrees (in an almost 2:1 ratio) than elementary teachers. These advanced degrees mean a higher salary output per pupil for secondary teachers, and teaching salaries is the biggest item in any school's budget. Despite the above reasons for higher per pupil costs in secondary schools, there are three high schools on the list of the "top ten" in which per pupil cost is lower than the national average for all schools. None of these three is the largest or the smallest of the ten.

Comparing the figures on the number of pupils and the per pupil expenditures in each school reveals little relationship between the size of school and the per pupil cost; the school with 2,037 pupils spends more than twice as much per pupil than the school with 2,050 pupils, yet they both are outstanding high schools. An important consideration is that per pupil cost is not really "cost," but a measure of the ability and willingness of the community to finance education. What some would consider the most ideal situation--one teacher for each pupil and total individualization of instruc-

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* sed in two separate buildings

tion for each student over his 12 or 13 years in public education--would have tremendous impact on the quality of education a child receives and tremendous impact on the cost of education. But this situation would have little, if any, relationship to the size of the school.

Pupil achievement. Tables E, F, and G cite studies which could be used to support either side of an argument on the effect of school size on the achievement of pupils both in high school and college. Factors other than school size seem to be more important in determining the degree of pupil achievement in school. The Minnesota Public School Survey Committee in 1969 (113) suggested that the educational attainment and occupation of the pupil's father might be a more relevant indicator than size of school, although pupils in large schools had fathers with higher educational and occupational levels than pupils in small schools, due no doubt to the location of schools. Using the Project Talent data, Flanagan (63) found that size of schools was not closely related to pupil achievement, and Kiesling (92), also using Project Talent data, concluded that, in terms of pupil achievement, larger high schools are less efficient than smaller schools.

Curriculum offerings. Researchers cited in Tables E, F, and G as testing curriculum offerings as a factor indicative of the ideal school size were concerned with the quantity rather than the quality of the courses offered. Except in districts where taxpayers are willing to finance the cost of providing a wide range of specialized courses for few pupils, it stands to reason that the larger schools are able to provide more diversified coursework for their pupils. Some researchers have, however, approached the question from the other side--that is, what is the maximum number of students (or multiples thereof) which will provide the most curriculum offerings in terms of cost-effectiveness? Woods (187) proposed 1,600 in four-year high schools; Mayo (108) arrived at a figure of 2,000; Engelhardt, Engelhardt, and Leggett (57), 3,000. Minimum suggested enrollments show even wider ranges. The above figures, of course, refer to high schools; there is little concern with diversity of courses in elementary schools.

Special services. Closely allied with the question of number and types of courses offered is the matter of the availability of special services for pupils. Although individual authors' definitions of a special service vary, the term might include such items as guidance services, library services, a wide range of health services (doctor, nurse, psychologist, dental technician, and classes and diagnostic services for various types of handicaps). Once again, it stands to reason that the larger schools and school districts will be better able to absorb the cost-impact of such specialized services. Some school districts, large and small, often have health services provided through the city or county government, and the cost is not reflected in the per pupil cost of education. It should be noted that none of the studies of school size deals exclusively with the factor of special services.

Professional personnel. Staff qualifications--degrees held, certification, and experience--as an indicator of school quality assumes that per se the possession of an advanced degree, more experience, and the granting of a state teaching certificate makes a better teacher or administrator. This has never been conclusively proved by research. Certainly there is some validity in each of the factors as a criterion of quality, but efforts to place in urban ghetto schools teachers who can "reach" and teach the culturally disadvantaged child have proven that the teacher with the doctorate, permanent certification, and 25 years' experience is not necessarily the teacher who can get results. More significant, perhaps, is a measure used by a few of the researchers--the number of teaching assignments in the teacher's major field--and one other indicator that the researchers on school size do not touch on, the type of student the teacher has been trained and accustomed to teach (e.g., college-bound, gifted, culturally deprived, etc.).

Pupil and staff relationships. The rapport that exists between students and teachers, between student and student, between administrators and pupils, between administrators and teachers, and be-

tween teacher and teacher is one of those hard-to-measure qualities that can have a tremendous effect on the teaching and the learning that is taking place in a school, no matter what its size. This is not to say that camaraderie or mutual admiration can take the place of good teaching. Certainly in the small school it is easier to develop close student-staff and staff-staff relationships, but it is not impossible in even a very large school. Based on the conclusions of investigators in this area, good relations can exist in small schools of 293-490 pupils (172), as well as in large schools of 2,000 pupils (114). The biggest variable, the individual, cannot be adjusted for in equations.

Percentage of graduates entering college. If one assumes that the "best" or "quality" school is one which has as its primary objective to prepare the greatest possible percentage of its students for success in college, then the percentage of graduates who enter college is a valid measure of how good the school is. The trend among educational theorists, however, has been to discard the notion that the purpose of elementary and secondary schools is to prepare students for college. Education for the world of work is considered by many educators to be the proper function of schools, whether that world of work is entered straight from high school or only after completing a graduate or undergraduate degree. A school which serves a student population which is not primarily college-bound should not be judged as unsuccessful because only a small percentage of its graduates go on to college. It may in fact be a better school at doing what it set out to do than the school which places 75 percent or more of its graduates in college. The question might also be raised as to whether entering college is an indicator of being prepared to succeed in college.

Extracurricular activities. Research on the best size of a school as related to its extracurricular activities shows, generally, that the larger schools have more variety in their extracurricular activities, but that there is more student participation in small schools. Individual students in smaller schools tend to participate in a greater number of activities and a larger percentage of the small school's student body is active in one or more extracurricular groups, according to Barker (13) and Kleinert (94 and 95). The various investigators who have considered the effect of school size on the extracurricular program, however, have come up with different opinions on what constitutes the maximum size school to support the best marriage of variety of activities and degree of student participation. Brown (23) sets a limit of 1,800 pupils. While Barker made no recommendation, his study favors schools of less than 300 pupils (13). Kleinert's data supports schools of no more than 1,500 pupils (94 and 95).

WHAT CAN BE DONE TO MINIMIZE THE INADEQUACIES OF A SMALL SCHOOL?

A number of educational developments in recent years show promise in compensating for the inadequacies of the small school, particularly the small secondary school. Some of these are new concepts; others are merely new approaches to the old problem.

Providing more courses and specialized teachers. Two deficiencies in the curricular offerings of small high schools are the lack of sufficient pupils to warrant the hiring of a special teacher in certain areas and insufficient students to provide three- and four-year course sequences in subjects when only one or two years are required for graduation.

The area vocational high school and workstudy programs where students receive on-the-job training are but two examples of solutions to the high cost of providing vocational and technical equipment and instructors in each school or each school district. The problem of hiring teachers in special areas which require special equipment might also be solved by "renting" a teacher and his facilities from the surrounding community and scheduling other classes so that sufficient time is provided for travel to and from the class location. The success of such a plan, borrowed from the "school-without-walls" concept, is dependent on the locale of the school, the logistics of scheduling, and the certification regulations of the state department of education.

If a teacher qualified in a particular subject area is already employed, but the scheduling of advanced courses in a sequence is impossible because he can teach only so many periods each day or there is little demand for the advanced sections, the solution might be to set up "multiple classes." Borrowed from the one-room school of old, the multiple class would have two or more levels of classes in the same subject area taught at the same time. For instance, an intermediate and an advanced level of French could be taught during the same period. Such an arrangement also has the advantage of forcing students to develop independent study techniques.

Some modern technological advances are also helpful in increasing the variety of courses offered. Used independently, or in conjunction with multiple classes, programmed instruction and computer-assisted instruction can fill in for the instructor who is occupied with another class.

Two other solutions might be utilizing professors and graduate students to teach on a part-time basis if there is a university or college nearby, and supervised enrollment of pupils in correspondence courses.

Short-term explorations into subjects not taught in the regular curriculum can be another way of supplementing a restricted curriculum in the small school. Such courses may be taught by outside experts or by regular classroom teachers, and may be scheduled before or after school, during a free period, or for a whole week or two in the school year. Work-experience can be one of the types of minicourses available to students. Other minicourses might also utilize nonschool locations--e.g., hospitals, a jeweler's store.

The above are but a few of the programs implemented in small high schools as a result of such cooperative programs as the Texas Small Schools Project (17) and similar ventures between school districts, schools and colleges, state departments of education, and foundations, to study the needs of the small, particularly the small rural, school and devise some ways of compensating for their shortcomings. For discussions of such projects, the reader is referred to the February 1966 issue of the Bulletin of the National Association of Secondary School Principals.

The "Smallway Model". Conceived by Stanton Leggett and Associates, Inc., for the Bratenahl School System, Ohio, the "Smallway Model" was developed to prove that small secondary schools could compete successfully with larger ones and provide an effective range of experiences if the teaching model is shifted and four organizational devices being used in various schools are synchronized (103). "Small" is defined in the proposal as 250 or fewer students, down to a minimum of 50. The concept is based on (1) a very carefully selected staff in which each individual combines two or more competencies--e.g., a principal-counselor, a librarian-teacher, a mathematics teacher interested in athletics; and (2) the effective implementation of four concepts for providing more courses--minicourses, the nongraded approach, unstructured time for independent study in a modular schedule, and phasing of courses. Phasing means that all students study one major subject at a time, where sequence is not important; that is, all students take American literature one year, all English literature the second year, world literature the third year, and so on.

WHAT ABOUT MINIMIZING THE PROBLEMS OF A LARGE HIGH SCHOOL?

As can be seen from the list of disadvantages of the large high school on page 3, most of its problems surround its dehumanizing influence rather than any financial considerations--students and teachers can get lost in the crowd; there is reduced participation in extracurricular activities; there are more social and administrative problems. A massive effort to improve human relations, or to increase student involvement, can meet the problem only part way. A solution that has been adopted in some large schools is the house plan or school-within-a-school concept. Simply, it involves dividing the enrollment into several groups, on the basis of grade placement or course of study, and housing them in separate buildings or wings of a building. Each group has its own principal, usually

designated a housemaster, its own counselor, its own classrooms for homeroom and academic classes, its own student government, and often its own lunchroom. For specialized classes students and/or teachers move to a facility which specializes in one subject area--industrial arts, for instance. There is still one football team, one marching band, and the like. Popular clubs can exist in each house; less popular ones can draw membership from all houses. Not all of the problems of a large school can be solved by the house plan, however, and others might be created, such as differences in policy implementation in each house.

In discussing the advantages and disadvantages of "Smallway," its creators noted that "it costs very little more to be small--if the teaching system changes." (103:52). However, data available in research on school size do not appear to substantiate this contention. If efficiency of a school means that it costs less to do the same job, then it would seem that large schools are more efficient.

SCHOOL DISTRICT SIZE

Foreign visitors to the United States and even U.S. citizens find it hard to believe that there is no one centralized educational governing body in this country. The system of education is based on the state as the largest unit. Each state's educational structure has no more than three basic levels--the state board of education, the intermediate school district, and the local school district. Hawaii and the District of Columbia each have only one level; in Hawaii the state board of education is also the local board since the entire state of Hawaii is one school district. The District of Columbia has a locally-elected board, but must have its budget approved by Congress. Some states have no intermediate school districts, and thus operate only two levels of school system administration.

State school systems, of course, include all school districts within the state--intermediate and local. Intermediate school districts may be of two types. They may be county intermediate units including all the local school districts in the county, or they may encompass school districts which have no other geographical or political boundary in common. Local school districts can be classified in a variety of ways. The most commonly used statistical classification is "operating" and "nonoperating." Operating school districts operate schools; nonoperating districts send all their pupils to other districts on a tuition basis.

Local school districts may also be classified according to whether or not the school district boundaries are coterminus with the local governmental unit. For instance, there are city school districts which correspond to the city limits; city school districts which also include some or all of the city's suburbs; county school districts which include the residents of all the cities in that county as well as the unincorporated areas; and county school districts which exclude one or more of the incorporated cities within its boundaries. There are township school districts, and school districts which have no relationship to a governmental unit.

Additionally, school districts may be classified by the grade levels which they operate--i.e., elementary only; secondary only; elementary/secondary (unified); or, in California particularly, elementary/secondary/junior college.

However local school districts are classified, there are a tremendous number of them. The only classification of school districts for which recent statistics are available is operating versus nonoperating. Table H, on page 21, shows the number of each type and the percentage of change for selected years since the 1947-48 school year. Over the past 40 years the decrease in the total number of school districts has been 85.9 percent. The trend is even more encouraging in the matter of nonoperating school districts. The NEA Research Division in its annual Estimates of School Statistics

Research Report (see footnote c/ to Table H) has suggested that the number of nonoperating school districts reached a low of 743 in 1970-71, a 95.7 percent decrease since 1947-48.

The job is, however, far from completed. The National Academy for Education's Committee on Educational Policy has proposed that the number of operating school districts should be no more than 5,000 (119). What has been achieved so far is due primarily to the efforts of state and multistate projects to eliminate the number of small school districts and the nonoperating districts.

Why has so much effort been expended in the past 20 years in the cause of eliminating school districts? The data in Table I, on page 22, show the unequal distribution of districts and expenditures among enrollment categories, metropolitan and nonmetropolitan areas, and the various regions of the United States. The concern is not where the districts are, either by region or metropolitan status; schools must be where the pupils are. The problem is that about 80 percent of our districts enroll less than 2,500 pupils; about 40 percent, less than 300 pupils. Four-fifths of all the districts in the country enroll only about one-fifth of all the pupils. Comparing the various minimum size recommendations proposed for schools, this means that 41.4 percent of our districts cannot do justice to the operation of even one school, even if that school has only one instructional level (elementary or secondary), if economy and quality are considerations. The shortcomings of small districts, which must necessarily operate small schools, were outlined in 1958 by the Commission on School District Reorganization appointed by the American Association of School Administrators (7:23).

> These small districts need to be reorganized into effective and efficient administrative units. They are outdated and outmoded. They have outlived their usefulness. They can no longer do the job that needs to be done. Their limitations appear in the form of:
>
> 1. Barren, meager, insipid curriculums, particularly at the secondary-school level.
> 2. Inability to attract and to hold high-quality teachers and administrators.
> 3. Inability to construct the school plants needed.
> 4. Needless waste of manpower through unjustifiably small classes and low pupil-teacher ratios.

Table H

TRENDS IN THE NUMBER OF SCHOOL DISTRICTS, SELECTED YEARS SINCE 1947-48

Year	Total	Percent of change	Operating	Percent of change	Nonoperating	Percent of change
1947-48 a/	100,946	...	83,815	...	17,131	...
1952-53 a/	67,045	- 33.6%	55,154	- 34.2%	11,891	- 30.6%
1960-61 a/	36,427	- 45.7	31,750	- 42.4	4,677	- 60.7
1965-66 b/	26,983	- 25.9	24,446	- 23.0	2,537	- 45.8
1970-71 c/	17,896	- 33.7	17,153	- 29.8	743	- 70.7

a/ National Education Association, American Association of School Administrators and Department of Rural Education. School District Organization: Journey That Must Not End. Washington, D. C.: the Association, 1962. Table IV, p. 12.

b/ Hutchins, Clayton D., and Barr, Richard H. Statistics of State School Systems, 1965-66. U. S. Department of Health, Education, and Welfare, Office of Education. Washington, D. C.: Government Printing Office, 1968. Table 6, p. 24.

c/ ESTIMATED. National Education Association, Research Division. Estimates of School Statistics, 1970-71. Research Report 1970-R15. Washington, D. C.: the Association, 1970. Table 1, p. 26.

5. Unreasonably high per-pupil expenditures for the quality of educational program provided.
6. Inefficient use of financial and other educational resources.
7. Poor location of buildings.
8. Inequality of the burden of school support.
9. Cumbersome, complex formulas for distributing state school aid.
10. Absence of many needed specialized educational services that add quality to the educational program.

If the inefficiency of small school districts is so obvious, why can't the state government merely reorganize all districts in its state to create more efficient school districts? First of all, there is the matter of how much power the state actually has to do this, according to state law. Reorganization laws in some states are "cumbersome and inadequate" (146:89)*. Or the laws may provide the needed authority, but state boards are reluctant to act for a number of reasons (146:89). One reason may be that if reorganization efforts are initiated locally, they have a much better chance to succeed.

* For a discussion of the complexity of school district reorganization laws in each state, the reader is referred to bibliography reference 61.

Table I

DISTRIBUTION OF SCHOOL DISTRICTS BY SIZE AND PER PUPIL EXPENDITURES, 1967-68

School districts	Percent of total districts	Percent of total enrollment	Per pupil expenditure in ADM
1	2	3	4
Enrollment			
25,000 or more	0.9%	28.5%	$604.50
10,000 - 24,999	2.6	17.4	542.59
5,000 - 9,999	5.5	16.9	575.82
2,500 - 4,999	10.1	15.8	547.14
300 - 2,499	39.4	19.8	576.04
Under 300	41.4	1.7	656.09
Metropolitan status			
Metropolitan, central	1.6	26.1	610.91
Metropolitan, other	22.9	38.6	631.68
Nonmetropolitan	75.5	35.3	494.46
Region of U. S.			
North Atlantic	17.1	23.7	729.05
Great Lakes and Plains	44.4	26.8	577.20
Southeast	9.2	23.3	425.68
West and Southwest	29.3	26.2	560.53

SOURCES:

Data in first section of Column 2 (percent of total enrollment) and all data in Column 3 are from: U. S. Department of Health, Education, and Welfare, Office of Education. Statistics of Local Public School Systems, 1967. Washington, D. C.: Government Printing Office, March 1969. p. 3-6.

Data in Column 2 on distribution by metropolitan status and region are for fall 1968 and are from: U. S. Department of Health, Education, and Welfare, Office of Education. Statistics of Local Public School Systems: Schools, Pupils, and Staff, Fall 1968. Washington, D. C.: Government Printing Office, March 1970. Table C, p. 7.

Data in Column 4 are from:
U. S. Department of Health, Education, and Welfare, Office of Education. Statistics of Local Public School Systems; Finances, 1967-68. Washington, D. C.: Government Printing Office, 1970. Table G, p. 10.

Even in states where reorganization is a relatively simple matter under state law, localities are reluctant to undertake needed reorganization for almost as many reasons as man can devise. Some have bases in fact; others are products of misunderstandings or ignorance. Some state financial provisions, for instance, are designed (whether intentionally or not) to discourage district reorganization. Chase and Morphet in the 1949 study of state school systems (31:200) pointed out some of these, as follows:

1. Too much aid is granted to small isolated schools. If they are consolidated, a loss in the amount of state aid occurs.
2. Aid is granted on the number of teachers employed. If reorganization effects a reduction in the number of teachers needed, there is a loss in the total amount of aid.
3. Districts are classified according to population and the percent of the cost of schools paid by the state is greatest for the smallest class of districts. Thus, if districts consolidate so as to reach the next highest class size, they suffer a loss in state aid.
4. State aid is sufficient to enable many small districts to operate with no local taxes, or with very low tax rates.
5. Insufficient state equalization funds are granted for current expenses, with the result that reorganization places too great a tax burden on general property in the new district.
6. Insufficient state aid, or none at all, is made available for pupil transportation.
7. Insufficient state aid, or none at all, is made available for school buildings.

Not infrequently the school district's employees are opposed to reorganization or consolidation. The new district will need one less superintendent, and usually fewer other administrators than the two districts did. Some teachers, too, especially those with low qualifications, often fear their lack of professional preparation might not be accepted in the new school system. Others, who are accustomed to almost complete lack of supervision, view reorganization as a threat to their freedom and flexibility. Many are totally inexperienced in a larger school system and fear whatever is unfamiliar to them (86:4).

Perhaps the greatest deterrent to school reorganization can be found in the resistance to reorganization by communities. The following list of citizen concerns has been compiled from Sayres (153:3) and Purdy (146:89-90).

1. Lack of understanding as to what constitutes an educational program that is both comprehensive and excellent.
2. Confusion, misunderstanding, and mistrust because of lack of support by school administrators.
3. Fear of losing local control.
4. Fear of increased costs, taxation.
5. Security in the traditional experiences of the past; resistance to change.
6. Fear of increased transportation time and distance for children.
7. Conflicts between merging districts--ethnicity, tax system, economic system.
8. Political controversy over reorganization.
9. Fear of losing community identity.
10. Fear of anything "big."

The effect of a well-planned and well-executed district reorganization is synergistic. It will result in more than just the union of two districts. With twice as many resources the new district has a better chance to eliminate those limitations outlined for small districts by AASA's Commission on School District reorganization (see page 21). A list of possible benefits to be realized from reorganization of school districts would be endless. One thing reorganization will not necessarily do is reduce the tax rate. Reorganization is expensive initially. It may raise taxes in one district or in both districts, or it may raise taxes in one district and lower them in the other. It will equalize the tax rate for schools. What reorganization will mean to each newly reorganized district

depends on each district. The advantages of reorganization are chiefly in the quality of the educational program which can be realized through a larger pupil population and tax base; more specialized courses, teachers, and facilities are economically feasible in larger districts. Kreitlow's longitudinal study of reorganized school districts in Wisconsin (98) has shown that although there were no significant differences in mental ability between pupils in reorganized and nonreorganized districts at the first-grade level, standardized achievement tests administered to the same groups of children who remained in the same districts through grades 6, 9, and 12 revealed significantly greater achievement among the pupils in reorganized districts.

WHAT SIZE SHOULD A SCHOOL DISTRICT BE?

Unlike the question of school size, the research on district size is of fairly recent vintage, as can be seen from Table J, on page 25, which outlines the more widely quoted recommendations on the size of a local school district.

There can be many answers to the question of desirable size of school district, depending a great deal on the particular area involved. What is the right size school district for Nevada will certainly not be the right size for Massachusetts, for instance. H. Thomas James and his colleagues (89:69-100) studied school data for the 1958-59 school year in a sample of 577 districts in nine states. All districts enrolled grades 1 through 12, with enrollments ranging from 1,500 to 846,616 pupils. Based on a separate analysis of each of the nine states, they algebraically computed optimum size figures in ADA for each state, based on the size of districts with the lowest per pupil expenditure. Figures were then computed which showed the economy of scale in dollars savings per pupil in the optimum district when compared with a district of 1,500 pupils in each state. The per pupil expenditure in the optimum district was compared with the largest district in the state to determine the diseconomy of scale which existed in the largest district. Their findings are shown below:

State	Number of districts in sample	Optimum size in ADA	Economy of scale	Largest district studied in state	Diseconomy of scale
Nebraska	17	20,000	$15	41,633	$10
New Jersey	108	30,000	19	57,392	18
New Mexico	23	40,000	33	46,737	15
California	52	50,000	21	93,355	27
Oregon	26	50,000	28	63,289	4
Massachusetts	83	79,028*	26	79,028	0
Wisconsin	46	86,667*	36	86,667	0
Washington	47	91,762*	27	91,762	0
New York	175	160,000	96	846,616	114
Median		50,000	27	79,028	17

*The unit cost residuals continued to decline up to the size of the largest district in these states; thus, the optimum might be even higher if larger districts were available for comparison.

These findings indicate that, even when the only consideration is per pupil expenditure, the "optimum" size of school district varies widely from state to state. Other factors which must be considered cannot be reduced to statistics. The following, more general, criteria for establishing effective school districts are of significance. The first five points were drawn from Faber (58:33), and the last two are suggested in the Bundy Report (24:16).

(Continued on page 26)

Table J

SUMMARY: RECOMMENDATIONS IN PROFESSIONAL LITERATURE ON SIZE OF LOCAL SCHOOL DISTRICTS
(Figures in parentheses in first column refer to bibliography beginning on page 30.)

Source	Recommended sizes of local school districts		
	Minimum	Optimum	Maximum
Dawson, 1934 (46)	...	9,800-12,000 pupils	...
Briscoe, 1935 (21)	40 teachers	200-250 teachers	...
Cook, 1936 (41)	46 teachers	10,000-12,000 pupils	...
Alves, Anderson, and Fowlkes, 1939 (5)	425-635 (6-6 plan) 675-1020 (8-4 plan) 965-1465 (6-3-3 plan)	...	...
Carpenter, 1948 (29)	1,250 pupils	...	...
National Commission on School District Organization, 1948 (121)	10,000-12,000 pupils	...	...
Johns and Morphet, 1950 (91)	...	10,000 pupils	...
White House Conference on Education, 1956 (39)	40 teachers and 1,200 pupils	...	10,000 pupils
Fitzwater, 1958 (61)	5,000 pupils	...	...
Committee for Economic Development, 1959 (38)	...	25,000 pupils	...
Blanke, 1960 (18)	...	...	10,000-15,000 pupils
Grieder, Pierce, and Jordan, 1961 (70)	2,000-3,000 pupils in ADA	...	...
Packard, 1963 (141)	...	10,000 pupils	...
California Commission on School District Organization, approx. 1963 (27)	10,000 pupils	...	...
Campbell, Cunningham, and McPhee, 1965 (28)	2,000 pupils	10,000 pupils	40,000 pupils
George Peabody College for Teachers, 1965 (66)	10,000 pupils	15,000-20,000 pupils	...
Benson, 1965 (15)	...	50,000 pupils	...
Swanson, 1966 (165)	...	20,000-50,000 total population (about 12,000 pupils)	...
Faber, 1966 (58)	10,000 pupils	20,000 pupils	...
Morphet, Johns, and Reller, 1967 (116)	10,000 pupils	40,000-50,000 pupils	...
Lane, Corwin, and Monahan, 1967 (101)	10,000 pupils	...	...
Idaho Superintendents Association, 1968 (83)	1,600 pupils	10,000-15,000 pupils	25,000-30,000 pupils
Whitt, 1968 (182)	1,500-2,000 pupils	10,000-30,000 pupils	50,000 pupils
Committee to Study the Next Steps of Regionalization and Consolidation in the School Districts of New Jersey, cited in New Jersey Education Review, 1969 (132)	3,500 pupils	...	...
National Academy of Education, 1969 (119)	5,000 pupils	...	150,000 pupils
Knezevich, 1969 (96)	10,000 pupils (2,400 if part of intermediate district)	...	....

1. *Scope of the program.* The district should offer a comprehensive program of elementary and secondary education. Some authorities include nursery schools, kindergarten, junior college, and adult education.
2. *Range of educational services.* The district should provide a complete range of educational services, including: special classes for physically and mentally handicapped; remedial programs for underachievers; special programs for academically gifted pupils; and health, guidance, and counseling services for all pupils.
3. *The community.* The district should include one well-defined community, or a group of interrelated communities which form a natural sociological area.
4. *Administrative and instructional staff.* The district should be large enough to employ specialized administrative and supervisory personnel and teachers with preparation in all areas taught.
5. *Economic base.* The district must be able to support financially the kind of educational program implied by the above criteria. Statements of economic criteria may refer to the total income available to the district or its financial efficiency as measured by cost per pupil.
6. *Time and distance from school.* The district must be small enough so that pupils, particularly elementary pupils, should not have to spend an inordinate amount of time in transit. This concern is particularly important in sparsely populated rural areas in some of the states in the Western part of the United States.
7. *Racial composition of the district.* The district should, if feasible, include areas which contain a substantial number of embers of minority groups.

TYPES OF DISTRICT REORGANIZATION

Although the previous paragraphs in this section on the size of school districts have used school district reorganization as a broad term, there are a number of ways in which school districts can be enlarged, aside from simply redrawing all school district boundaries in the state. These are noted below:

1. The merger of one or more nonoperating districts with one or more operating districts.
2. The merger of one or more elementary school districts with one or more secondary school districts.
3. Multiple reorganizations--dividing up one or more districts and giving parts of each to existing districts.
4. Merging a city school district with some or all of its suburban districts.
5. Merging city school district(s) with the surrounding county district(s) thus forming one school district for all or nearly all the area in the county (e.g., Charlotte City-Mecklenburg County, N.C., and Mobile City and County, Ala.)
6. Merging some suburban or other noncity districts into a single district.
7. Formation of a regional high school district serving secondary students in several towns or townships (as contrasted to #2 above).
8. The formation of a metropolitan government and school system by merging an independent city or cities and county governments into one governmental unit for all functions. Nashville City-Davidson County, Tenn., and Jacksonville City-Duval County, Fla., are the only two examples of this type of merger.
9. Creation of a two-state school district (where law permits) encompassing some territory in each state. Examples of this are Union College Corner School District (Ohio and Indiana) and Dresden Interstate School District (New Hampshire and Vermont).

INTERMEDIATE SCHOOL DISTRICTS

Perhaps the only feasible alternative to reorganization for small school districts is the multidistrict educational agency which is part of the state school system structure and receives some of its operating funds from the state. Not all states have this middle level of administration, and where it does exist it goes by a variety of names.

Board of Cooperative Educational Services (New York)
Board of Cooperative Services (Colorado)
Cooperative Educational Service Agency (Wisconsin)
County School District (California, Iowa, Ohio, New Jersey)
Education Service Center (Texas)

Educational Service Region (Illinois)
Educational Service Unit (Nebraska)
Intermediate Education District (Oregon)
Intermediate School District (Michigan, Washington)
Intermediate Unit (Pennsylvania)

These agencies or districts should not be confused with groups of school systems which have banned together to study solutions to their mutual problems, such as the Central New York School Study Council or the Metropolitan Detroit Bureau of School Studies. These groups of districts are voluntary, cooperative, and sometimes temporary affiliations and are not part of the state school system structure.

How can intermediate districts help the smaller local school district? The 1954 Yearbook of the NEA Department of Rural Education (85) demonstrates some of the possible services which the intermediate unit might provide to its component districts. Each of these services either would be prohibitively expensive for a single district, or could not be provided to the extent or with the quality possible from a pooling of money and resources.

Adult education
Audio-visual library
  (equipment, films, etc.)
Communication
  (reports, bulletins, handbooks, etc.)
Cooperative or centralized purchasing
Curriculum laboratory
Curriculum leadership
  (conservation, safety, radio and TV programs, etc.)
Services for exceptional children
  Gifted children
  Mentally retarded
  Physically handicapped (crippled)
  Partially sighted (sight saving classes)
  Speech defectives
  Hard of hearing (lip reading)
  Homebound
Financial services
  Accounting
  Auditing
  Financial counseling
  Reporting
Health services
  School nurse
  School doctor
  Dental health and hygiene
Inservice education
  Teachers
  Administrators
  School board members
  Bus drivers
  Clerical personnel
  Custodians
  School lunch personnel
Instructional materials center
Instructional supervision
Legal services
Library services
  Books, films, recordings, etc.
  Exhibits, collections, models, etc.
  Professional library and materials
Professional personnel services
  Teacher placement services
  Substitute teacher pool
  Salary schedule development and coordination, sick leave policies, etc.
Pupil personnel services
  Attendance supervision
  Guidance and counseling
  Testing
  Psychological and psychiatric services
  Mental health clinic
Pupil transportation services
  Administration of transportation
  School bus maintenance
  Bus driver training
Recreation programs
Research
School building services
  Planning and maintenance
  Building clinics
  Architectural service
School lunch services
  Coordination
  Supervision
Special teachers
  Art, music, agriculture, homemaking, physical education, etc.
Special consultants and coordinators
  Reading consultant, science consultant, etc.
Trade and industrial education

A more up-to-date consideration of the problem by Isenberg (87) classifies the types of services which can be provided by intermediate units into the following general categories:

1. Programs which require a large pupil population base for effective and economical operation because the incidence of need is small (e.g., speech theraphy for preschool deaf children).
2. Programs which require a large pupil population base for effective and economical operation because the kinds of equipment and/or personnel they require are highly specialized, expensive, in short supply, or infrequently used (e.g., data processing equipment).
3. Programs which require a larger area in order to get an appropriate and desirable social and economic mix (e.g., outdoor education program for children from rural, central cities, and suburbs).

4. Programs which by nature must be regional or which relate to nonschool oriented regional agencies (e.g., drug traffic and abuse).

5. Programs of research and those which might be considered experimental, pilot, or of a demonstration type.

One of the most expensive services now being provided by some intermediate districts to their member districts is data processing. In fact, data processing may be too expensive an item for most intermediate districts to provide. In New York, for instance, the provision of data processing for local school districts is being developed through a network of data processing districts, each of which will include several Boards of Cooperative Educational Services.

In determining the appropriate size of an intermediate school district, a number of factors need to be considered. The extent of services to be provided, such as data processing, will, of course, have bearing on what the ideal size should be. Additionally, and somewhat related, is the factor of the support the state and component districts can provide; that is, an intermediate district may need only enough member districts to adequately finance the required services. The size of the area is also an important factor; a district encompassing several hundred thousand square miles would encounter massive transportation costs in getting its services to its component districts. Few suggestions have been made as to the ideal size of an intermediate service unit. Inman (84:173) compiled the following recommendations adopted as minimum for individual states:

Michigan	- 5,000	pupils
Nebraska	- 10,000	pupils
Ohio	- 35,000	pupils
Texas	- 50,000	pupils (subject to sparsity factor)
Washington	- 20,000	pupils
Wisconsin	- 25,000	pupils

Although these recommended minimums show a great disparity in numbers, they are all well below the figure suggested by Robert M. Isenberg, Associate Executive Secretary of the American Association of School Administrators, who has worked many years with administrators of intermediate districts. He suggests a minimum from 60,000 to 100,000 pupils in member districts, but cautions that it is impossible to arrive at a figure that will fit every location.

WHAT ABOUT SCHOOL DISTRICTS WHICH ARE TOO LARGE?

Up to this point the discussion in this Information Aid has focused entirely upon eliminating inefficient small school districts, primarily because there are so many of them. But it is likewise true that there are some districts which are just too large from the viewpoint of efficient administration, if not for other reasons. While it is easy to define the point below which districts are too small because they do not have the financial resources to provide quality education, it is nearly impossible to determine that point beyond which costs and other factors make the district inefficient and overly expensive.

Judging from even the largest maximum size recommendation in Table J, there are currently 11 school systems which are too large (over 150,000 pupils). If the next largest maximum recommendation is considered (50,000 pupils), 83 districts are currently too large. Some of the larger systems are trying to compensate for the problems of bigness by decentralizing administrative functions. In decentralization the school district is broken down into several subdistricts for administrative purposes. About the only thing the various decentralization plans now have in common is that each subdistrict has its own administrator. Differences in decentralization structures are primarily in the degree of authority exercised by the local administrator and by the citizens of the subdistrict. The subdistrict or area administrator may also have authority over what were formerly central office supervisors of instruction and services; for instance, he may have his own supervisors of English, psychologists, and instructional materials specialists. At the other end of the spectrum, the areas

or districts may each have their own elected boards of education and superintendent to determine fiscal allocations, instructional policy, and hiring of personnel. For a more detailed explanation of what decentralization is and what it means in specific school districts, the reader is invited to consult ERS Circular No. 7, 1969, Decentralization and Community Involvement: A Status Report (53).

There have been fewer recommendations on the size of decentralized subdistricts than in any other size area. Havighurst (76:126) suggests a district with 300,000 to 500,000 population for administrative decentralization. In subdistricts with community-controlled boards of education, Havighurst dropped the figure to 7,000 to 8,000 students. For New York City, the Bundy Report (24:17) set a range of 12,000 to 40,000 pupils in subdistricts. Passow (142:23) recommended 20,000-pupil districts for Washington, D. C.

In most decentralized systems, the average size of the subdistrict falls within the range suggested by the Bundy Report. The following data on average size of decentralized districts in 23 systems was computed by the Educational Research Service from ERS Circular No. 7, 1969 (53).

School system	Number of subdistricts	Average enrollment of subdistricts	School system	Number of subdistricts	Average enrollment of subdistricts
Montgomery County, Md.	12*	11,000*	Hillsborough County, Fla.	4	26,000
Portland, Oreg.	7	12,000	Baltimore, County, Md.	5	27,000
San Diego, Calif.	10	13,000	New Orleans, La.	4	27,000
Clark County, Nev.	5	14,000	Fairfax County, Va.	4	33,000
Boston, Mass.	6	16,000	Metropolitan School System, Nashville, Tenn.	3	34,000
Garden Grove, Calif.	3	18,000	New York, N.Y.	32	35,000
St. Louis, Mo.	6	20,000	Philadelphia, Pa.	8	36,000
Chicago, Ill.	27	21,000	Detroit, Mich.	8	36,000
Brevard County, Fla.	3	21,000	Dade County, Fla.	6	40,000
Atlanta, Ga.	5	22,000	Los Angeles, Calif.	12	55,000
Broward County, Fla.	5	23,000			
Fremont, Calif.	4	24,000			
San Antonio, Texas	3	25,000			

*Six districts effective July 1, 1971

IN SUMMARY

What has been proved in all the foregoing discussion and accompanying data? Perhaps Nelson (131:182) best summed it up when commenting on his own investigations on high school size: ". . . the quality of learning is not a function of numbers but, rather, a function of the presence or absence of desirable learning experiences."

School District Reorganization

School consolidation, decentralization, and community control are interrelated problems. Excessive smallness, overpowering bigness, and inadequate responsiveness to the needs and concerns of local communities may be remedied through consolidation or decentralization.

Four factors should be considered in the search to achieve an optimum size school district: resource potentiality, accessibility, accountability, and flexibility. The district should have tax base resources sufficient to ensure a top quality educational program, and an organizational structure that will ensure genuine responsiveness to the concerns of pupils, parents, teacher, and patrons.

We recommend that these four principles guide boards of education, school administrators, and school systems as they engage in reorganization, whether through consolidation or decentralization and community control, to achieve greater educational productivity and an increased responsiveness to community needs and concerns.

--1970 Resolution of the American Association of School Administrators

BIBLIOGRAPHY

1. Adams, Raymond S.; Kimble, Richard M.; and Marlin, Marjorie. "School Size, Organizational Structure, and Teaching Practices." Educational Administration Quarterly 6: 15-31; Autumn 1970.

2. Alkin, Marvin C., and Benson, Charles S. "Economy of Scale in the Production of Selected Educational Outcomes." Administrator's Notebook 16: 1-4; May 1968.

3. Alkin, Marvin C.; Benson, Charles S.; and Gustafson, Robert H. Economy of Scale in the Production of Selected Educational Outcomes. Paper prepared for the American Educational Research Association. Chicago: the authors, February 1968. 9 p.

4. Altman, Esther Royal. "The Effect of Rank in Class and Size of High School on the Academic Achievement of Central Michigan College Senior Class of 1957." Journal of Educational Research 52: 307-309; April 1959.

5. Alves, Henry F.; Anderson, Archibald W.; and Fowlkes, John Guy. Local School Unit Organization in Ten States. U. S. Department of the Interior, Office of Education Bulletin 1938, No. 10. Washington, D.C.: Government Printing Office, 1939. p. 296-97.

6. American Association of School Administrators. American School Buildings. Twenty-seventh Yearbook. Washington, D.C.: the Association, 1949. p. 43.

7. American Association of School Administrators, Commission on School District Reorganization. School District Organization. Washington, D.C.: the Association, 1958. 323 p.

8. Anderson, Kenneth E.; Page, Tate C.; and Smith, Herbert A. "A Study of the Variability of Exceptional High School Seniors in Science and Other Academic Areas." Science Education 42: 42-59; February 1958.

9. Anderson, Robert H. Teaching in a World of Change. New York: Harcourt, Brace, and World, 1966. Chapter 3, "Organization of Schools: A General Discussion." p. 22-44.

10. Andrews, Lloyd Nelson. Relationship of High School Size to School-Community Relations. Doctoral dissertation. Stanford, Calif.: Stanford University, 1958. 173 p. Abstract: Dissertation Abstracts 19: 707; No. 4, 1958.

11. Arlington County School Board. Study of Suburban School Size: Highlights. Arlington, Va.: Public Schools (1426 N. Quincy St., 22210), 1965. 34 p.

12. Baird, Leonard L. "Big School, Small School: a Critical Examination of the Hypothesis." Journal of Educational Psychology 60: 253-60; August 1969.

13. Barker, Robert G., and others. Big School--Small School: Studies of the Effects of High School Size Upon the Behavior and Experiences of Students. U. S. Office of Education, Cooperative Research Project No. 594. Lawrence, Kans.: Midwest Psychological Field Station, University of Kansas, 1962. 286 p.

14. Bell, Thomas O. "School District Organization Project." Idaho School District Organization Project. Report of the October Conference, "Planning for School District Organization in Idaho." Moscow, Idaho: University of Idaho, November 1967.

15. Benson, Charles S. The Cheerful Prospect. Boston: Houghton Mifflin, 1965. 134 p.

16. Bertrand, J. R. "Relationship Between Enrollment of High Schools from Which Students Graduated and Academic Achievement of Agricultural Students: A and M College of Texas." Journal of Experimental Education 25: 59-69; September 1956.

17. Bitters, Charles T. "Quality and Variety in Texas Small Schools." Bulletin of the National Association of Secondary School Principals 50: 63-70; February 1966.

18. Blanke, Virgil E. "Reorganization: A Continuing Problem." Administrator's Notebook 9: 1-4; October 1960.

19. Bledsoe, Joseph C. "An Analysis of the Relationship of Size of High School to Marks Received by Graduates in First Year of College." Journal of Educational Sociology 27: 414-18; May 1954.

20. Bosley, Howard E. Size-Cost Relationships in Illinois Public Schools. School District Reorganization Series, Bulletin No. 7. Carbondale: Southern Illinois University, 1948. p. 22-23.

21. Briscoe, Alonzo O. The Size of the Local Unit for Administration of Public Schools. Contributions to Education Series, No. 649. New York: Teachers College, Columbia University, 1935. 110 p.

22. Broady, K. O. "Small School Systems." Encyclopedia of Educational Research. Revised edition. (edited by Walter S. Monroe) New York: Macmillan Company, 1950. p. 1058.

23. Brown, William Earl. High School Size: Its Relationship to Selected Educational and Cost Factors. Doctoral dissertation. Los Angeles: University of Southern California, 1956.

24. Bundy, McGeorge, et al. Reconnection for Learning: A Community School System for New York City. Report of the Mayor's Advisory Panel on Decentralization of the New York City Schools. New York: the Panel, 1967. 127 p.

25. Bush, Robert Curtis. Relationship of High School Size to the Guidance Program. Doctoral dissertation. Stanford, Calif.: Stanford University, 1959. 147 p. Abstract: Dissertation Abstracts 20: 1238; No. 4, 1959.

26. Butterworth, Julian E., and Dawson, Howard A. The Modern Rural School. New York: McGraw-Hill Book Company, Inc., 1952. 494 p.

27. California Commission on School District Organization. Problems of School District Reorganization in California. Sacramento: State Department of Education.

28. Campbell, Roald F.; Cunningham, Luvern L.; and McPhee, Roderick F. The Organization and Control of American Schools. Columbus, Ohio: Charles E. Merrill Books, Inc., 1965. 553 p.

29. Carpenter, C. C. "Characteristics of a Satisfactory Administrative Unit." American School Board Journal 117: 27-28; December 1948.

30. Cashen, Valjean H. "High School Size as a Factor in College Academic Success." Journal of Secondary Education 45: 256-59; October 1970.

31. Chase, Francis S., and Morphet, Edgar L. The Forty-Eight State School Systems. Chicago: The Council of State Governments, 1949. p. 199-200.

32. Chisholm, Leslie L. School District Reorganization. Chicago: Midwest Administration Center, University of Chicago, 1957. 97 p.

33. Chisholm, Leslie L., and Cushman, M. L. "The Relationship of Programs of School Finance to the Reorganization of Local School Administrative Units and Local School Centers." Problems and Issues in Public School Finance. (Edited by R. L. Johns and E. L. Morphet). New York: Bureau of Publications, Teachers College, Columbia University, 1952. p. 65-110.

34. Clements, Williams H. A Third Look at High School Size: Academic Success of Entering Freshmen for 1965, 1967, and 1968 by Class Size Category. Stevens Point: Wisconsin State University, November 1969. 27 p.

35. Cohn, Elchanan. "Economic Rationality in Secondary Schools." Planning and Changing 1: 166-73; January 1971.

36. Collingsworth, B. Jack. An Analysis of the Relationship of Size of Arkansas High Schools to Selected Qualifications of High School Teaching Personnel. Doctoral dissertation. Fayetteville: University of Arkansas, 1961. 114 p. Abstract: Dissertation Abstracts 21: 3320; No. 11, 1961.

37. Commission on Illinois School Problems. Final Report of the School Problems. Springfield, Ill.: the Commission, 1953. p. 78.

38. Committee for Economic Development, Research and Policy Committee. Paying for Better Public Schools. New York: the Committee, 1959. 90 p.

39. Committee for the White House Conference on Education. A Report to the President. Washington, D. C.: Government Printing Office, 1956. p. 14-22.

40. Conant, James B. The American High School Today. New York: McGraw-Hill Book Company, 1959. p. 77-81.

41. Cook, Katherine M. (editor). Reorganization of School Units. U. S. Department of the Interior, Office of Education Bulletin 1935, No. 15. Washington, D.C.: Government Printing Office, 1936. 91 p.

42. Cornell, Francis G. "High School Size and Building Cost." American School Board Journal 134: 40-42; January 1957.

43. Crocker, Jack W. The Relationship of Size and Organizational Type to Certain Factors in Alabama's White Public Junior High Schools. Doctoral dissertation. University, Ala.: University of Alabama, 1960. 288 p. Abstract: Dissertation Abstracts 21: 2529-30; No. 9, 1961.

44. Cronin, Joseph M. School District Organization for the 1970's. Cambridge, Mass.: Harvard Graduate School of Education, n.d. 15 p.

45. Dade County Public Schools, Physical Plant Division. Instructional Equipment and School Plant Construction: Survey of the Major School Systems Thru-Out the United States. Miami, Fla.: Public Schools (1410 N. E. 2nd Ave., 33132), September 1970. p. 1-28. (Unpublished)

46. Dawson, Howard A. Satisfactory Local School Units. Field Study No. 7. Nashville, Tenn.: Division of Surveys and Field Studies, George Peabody College for Teachers, 1934. 180 p.

47. DeGood, K. C. The Myths of Reorganization. Columbus: Ohio School Boards Association, February 1968. 7 p.

48. DeGood, K. C. "Profile of the Small High School." Educational Leadership 18: 170-72, 182; December 1960.

49. Dickenson, Elbert L. Analysis of the Relationship of Size of Arkansas High Schools to Academic Success of Graduates in the First Year at the University of Arkansas. Doctoral dissertation. Fayetteville: University of Arkansas, 1958.

50. Douglass, Harl R. Modern Administration of Secondary Schools. Second edition. Boston: Ginn and Company, 1963. "Small and Large Schools." p. 596-600.

51. Dwyer, P. S. "Some Suggestions Concerning the Relationship Existing Between Size of High School Attended and Success in College." Journal of Educational Research 32: 271-80; December 1938.

52. Edmonson, J. B.; Roemer, Joseph; and Bacon, Francis L. The Administration of the Modern Secondary School. Fourth edition. New York: Macmillan Company, 1953. Chapters 25 and 26, p. 505-46.

53. Educational Research Service, American Association of School Administrators and NEA Research Division. Decentralization and Community Involvement: A Status Report. ERS Circular No. 7, 1969. Washington, D. C.: the Service, 1969. 56 p.

54. Educational Research Services, Inc. A Comprehensive Survey of the Metropolitan School System of Nashville and Davidson County, Tennessee. White Plains, N. Y.: the Service, September 1963. 298 p.

55. Engelhardt and Engelhardt, Inc., and Joseph M. Cronin Associates. New Patterns for Public Education in Rhode Island: A Progress Report to the Board of Regents for Education, 1971. New York: Engelhardt and Engelhardt, Inc., 1971. Quoted in "What About the Size of School District?" School Management 15: 38; May 1971.

56. Engelhardt, N. L.; Engelhardt, N. L., Jr.; and Leggett, Stanton. Planning Elementary School Buildings. New York: F. W. Dodge Corporation, 1953. "Size of Schools," p. 178-79.

57. Engelhardt, N. L.; Engelhardt, N. L., Jr.; and Leggett, Stanton. Planning Secondary School Buildings. New York: Reinhold Publishing Company, 1949. "Optimum Size of High School," p. 53-54.

58. Faber, Charles F. "The Size of a School District." Phi Delta Kappan 48: 33-35; September 1966.

59. Ferriss, Emery N. "Curriculum Demands on the Secondary School of the Future Affecting the Size of the Local School District." Education 53: 290-97; January 1933.

60. Fitzwater, Charles O. Educational Change and Reorganized School Districts. U. S. Department of Health, Education, and Welfare, Office of Education Bulletin 1953, No. 4. Washington, D. C.: Government Printing Office, 1953. 53 p.

61. Fitzwater, Charles O. Organizing Districts for Better Schools. U. S. Department of Health, Education, and Welfare, Office of Education Bulletin 1958, No. 9. Washington, D. C.: Government Printing Office, 1958. 49 p.

62. Fitzwater, Charles O. "Patterns and Trends in State School System Development." Journal of State School Systems Development 1: 5-32; Spring 1967.

63. Flanagan, John C. Project Talent: A Survey and Follow-Up Study of Educational Plans and Decisions in Relation to Aptitude Patterns: Studies of the American High School. Cooperative Research Project No. 226. Pittsburgh, Pa.: University of Pittsburgh, 1962. v. p.

64. Garcia, Genero Bruno. Junior High School Size. Doctoral dissertation. Los Angeles: University of Southern California, 1961. 271 p. Abstract: Dissertation Abstracts 22: 1484; No. 5, 1961.

65. Gaumnitz, Walter H., and others. How Large Are Our Public High Schools? U. S. Federal Security Agency, Office of Education Circular No. 304. Washington, D. C.: Government Printing Office, 1949. 39 p.

66. George Peabody College for Teachers, Division of Surveys and Field Services. Organization of School Systems in Georgia. Nashville, Tenn.: the College, 1965. 130 p.

67. Governor's Committee on Public School Education. The Challange and the Chance. Austin, Texas: the Committee, August 1968. 76 p.

68. Gray A. L. The Relation of Size of High School to Collegiate Success. Doctoral dissertation. Minneapolis: University of Minnesota, 1950. p. 45.

69. Gray, Stuart Calvin. A Study of the Relationship Between Size and A Number of Qualitative and Quantitative Factors of Education in Four Sizes of Secondary Schools in Iowa. Doctoral dissertation. Iowa City: State University of Iowa, 1961. 150 p. Abstract: Dissertation Abstracts 22: 2631; No. 8, 1962.

70. Grieder, Calvin; Pierce, Truman M.; and Jordan, K. Forbis. Public School Administration. Second edition. New York: Ronald Press, 1961. p. 25-27.

71. Gulick, Luther; Capen, Samuel P.; and Sanders, Sterling. Education for American Life. Report of the Regents' Inquiry into the Character and Cost of Public Education in the State of New York. New York: McGraw-Hill Book Company, 1938. p. 47.

72. Hanson, Nels W. "Economy of Scale as a Cost Factor in Financing Public Schools." National Tax Journal 17: 92-95; March 1964.

73. Hanson, Nels W. "The Size-Cost Relationship in Public Schools." Trends in Financing Public Education. Proceedings of the Eighth National Conference on School Finance of the NEA Committee on Educational Finance. Washington, D. C.: the Association, 1965. p. 125-33.

74. Harmon, Lindsey R. "High School Backgrounds of Science Doctorates: A Survey Reveals in Influence of Class Size and Origin as Well as Ability in Ph.D. Production." Science 133: 679-88; March 1961.

75. Hartung, Maurice L. "Is There an Optimum Size for a High School?" School Review 61: 68-72; February 1953.

76. Havighurst, Robert J. "Metropolitanism and the Issues of Social Integration and Administrative Decentralization in Large Cities." Equality of Educational Opportunity in the Large Cities of America: The Relationship Between Decentralization and Racial Integration. New York: Teachers College, Columbia University, 1968. p. 125-38.

77. Herrick, John H., et al. From School Program to School Plant. New York: Henry Holt and Company, 1956. p. 91-92.

78. Hickey, Michael E. Optimum School District Size. Research Analysis Series, No. 1. Eugene, Oreg.: ERIC Clearinghouse on Educational Administration, University of Oregon, December 1969. 36 p.

79. Hill, Henry M. "Increasing Educational Options Through Merging Communities." Compact 3: 24-26; April 1969.

80. Horton, Daniel B., Jr. "An Analysis of the Relationship of Per-Pupil Expenditure Levels and School Size With North Central Association Evaluation." Interdependence in School Finance: the City, the State, the Nation. Proceedings of the Eleventh National Conference on School Finance of the NEA Committee on Educational Finance. Washington, D.C.: the Association, 1968. p. 200-205.

81. Hoyt, Donald P. "Size of High School and College Grades." Personnel and Guidance Journal 37: 569-73; April 1959.

82. Hubbard, Frank W. "How Big is a Good School?" Elementary School Buildings: Design for Learning. 1959 Yearbook of the NEA Department of Elementary School Principals. Washington, D.C.: the Department, 1959. p. 110-15.

83. Idaho Superintendents Association. "Recommendations--School District Organization." Planning for School District Organization for Idaho. Report of the April Conference of the Idaho School District Organization Project. Moscow, Idaho: Bureau of Educational Research and Services, University of Idaho, June 1968. p. 82-97.

84. Inman, William E. "Size and District Organization." Planning for School District Organization: Selected Position Papers. Lincoln, Nebr.: Great Plains School District Organization Project (411 S. 13th St., 68508), June 1968. p. 159-75.

85. Isenberg, Robert M., editor. The Community School and the Intermediate Unit. 1954 Yearbook of the NEA Department of Rural Education. Washington, D. C.: the Department, 1954. 259 p.

86. Isenberg, Robert M. The Consolidation of Rural Schools in the United States. Unpublished paper. December 1964. 5 p.

87. Isenberg, Robert M. "States Continue to Reorganize Their Units." Planning and Changing 2: 17-20; July 1971.

88. Jackson, Joe L. School Size and Program Quality in Southern High Schools. Nashville, Tenn.: Center for Southern Education Studies, George Peabody College for Teachers, 1966. 58 p.

89. James, H. Thomas: Kelly, James A.; and Garms, Walter I. Determinants of Educational Expenditures in Large Cities of the United States. U. S. Office of Education Cooperative Research Project No. 2389. Stanford, Calif.: School of Education, Stanford University, 1966. 198 p.

90. Jantze, Ralph Dale. An Analysis of the Relationship of Accreditation, Finance, and the Size of Nebraska High Schools to Scholastic Achievement. Doctoral Dissertation. Lincoln: University of Nebraska Teachers College, 1961. 79 p. Abstract: Dissertation Abstracts 22: 1069; No. 4, 1961.

91. Johns, Roe L., and Morphet, Edgar L. "Relation of School District Reorganization to Finance in Business Administration." Review of Educational Research 20: 115-23; April 1950.

92. Kiesling, Herbert J. High School Size and Cost Factors. Washington, D. C.: Bureau of Research, Office of Education, U. S. Department of Health, Education, and Welfare, March 1968. 153 p.

93. Kiesling, Herbert J. "Measuring a Local Government Service: A Study of School Districts in New York State." Review of Economics and Statistics 49: 356-67; August 1967.

94. Kleinert, Erwin John. "Effects of High School Size on Student Activity Participation." Bulletin of the National Association of Secondary School Principals 53: 34-46; March 1969.

95. Kleinert, Erwin John. Student Activity Participation and High School Size. Doctoral dissertation. Ann Arbor: University of Michigan, 1964. 106 p. Abstract: Dissertation Abstracts 25: 3935; No. 7, 1965.

96. Knezevich, Stephen J. The Administration of Public Education. Second edition. New York: Harper and Row, 1969. p. 113-53.

97. Kowitz, Gerald T., and Sayres, William C. Cost and Educational Opportunities in Secondary Schools. Albany: New York State Education Department, May 1959. p. 58-62.

98. Kreitlow, Burton W. Long-Term Study of Educational Effectiveness of Newly Formed Centralized School Districts in Rural Areas. Technical Report No. 133. Madison, Wis.: Wisconsin Research and Development Center for Cognitive Learning, University of Wisconsin, April 1971. 84 p.

99. Ladies Home Journal. "America's Ten Top High Schools." Ladies Home Journal 85: 66, 68-69; May 1968.

100. Ladies Home Journal. "Twenty-Five Outstanding High Schools." Ladies Home Journal 80: 128; April 1963.

101. Lane, Willard R.; Corwin, Ronald G.; and Monahan, William G. Foundations of Educational Administration. New York: The Macmillan Company, 1967. 433 p.

102. Lathrop, Burton W. "Scholastic Achievement at Iowa State College Associated with High School Size and Course Pattern." Journal of Experimental Education 29: 37-48; September 1960.

103. Leggett, Stanton; Shapiro, Arthur; Cohodes, Aaron; and Brubaker, C. W. "The Case for the Small High School." Nation's Schools 86: 45-52; September 1970.

104. Link, A. D. Rural and Small School Consolidation--Some Problems and Suggested Procedures. Paper prepared for a Conference on Appalachia at the University of Tennessee in April 1971. Las Cruces, N. Mex.: ERIC Clearinghouse on Rural Education and Small Schools, New Mexico State University, February 1971. 35 p.

105. Livingston, A. Hugh. "Is There an Optimum Size High School?" Progressive Education 33: 156-59; September 1956.

106. MacVittie, Robert W. "Are Our Elementary Schools Too Large?" Nation's Schools 53: 56-57; June 1954.

107. Maxey, E. James, and Thomas, Donald R. "Selected Comparisons of Teacher and Curriculum Characteristics and Size of High Schools." Planning for School District Organization: Selected Position Papers. Lincoln, Nebr.: Great Plains School District Organization Project (411 S. 13th St., 68508), June 1968. p. 86-101.

108. Mayo, S. S. "What Size High School?" American School Board Journal 144: 32-33; January 1962.

109. McClurkin, W. D. "An Interview: The Case for Large School Districts." Southern Education Report 1: 8-14; May-June 1966.

110. McLure, William P. Financing Public Education in Mississippi. University, Miss.: University of Mississippi, Bureau of Educational Research, 1948. p. 16.

111. Menozzi, John. An Attempt to Determine the Optimum Size of Public Secondary Schools. Doctoral dissertation. Denver: University of Denver, 1959.

112. Merrill, E. C. "School District Reorganization: Implications for Financial Support." Trends in Financing Public Education. Proceedings of the Eighth National Conference on School Finance of the NEA Committee on Educational Finance. Washington, D. C.: the Association, 1965. p. 112-16.

113. Minnesota Public School Survey Committee. Summary of Phase I. St. Paul: the Committee, February 1969. 18 p.

114. Monahan, William Welsh, Jr. Teacher's Knowledge of Students Related to Urban High School Size. Doctoral dissertation. Berkeley: University of California, 1965. 153 p. Abstract: Dissertation Abstracts 26: 830-31; No. 2, 1965.

115. Montgomery, V. E. "Location of Vocational Schools in South Dakota." Planning for School District Organization: Briefs of Position Papers. Lincoln, Nebr.: Great Plains School District Organization Project (411 S. 13th St., 68508), May 1968. p. 38-39.

116. Morphet, Edgar; Johns, Roe L.; and Reller, Theodore L. Educational Organization and Administration. Second edition. Englewood Cliffs, N. J.: McGraw-Hill, 1967. "Organizational Guidelines," p. 322-25.

117. Morris, Harold J. Relationship of School Size to Per Pupil Expenditure in Secondary Schools in Nine Southern States. Doctoral dissertation. Nashville, Tenn.: George Peabody College for Teachers, 1964. 117 p. Abstract: Dissertation Abstracts 25: 6344-45; No. 11, 1965.

118. Nanninga, S. P. "Cost of Offerings of California High Schools in Relation to Size." Journal of Educational Research 24: 356-64; December 1931.

119. National Academy of Education, Committee on Educational Policy. Policy Making for American Public Schools. (Roald F. Campbell, committee chairman). Printed for use of the Committee on Education and Labor, House of Representatives, 1969. 31 p.

120. National Commission on School District Reorganization. A Key to Better Education. Washington, D. C.: Department of Rural Education, National Education Association, 1947. 16 p.

121. National Commission on School District Reorganization. Your School District. Washington, D. C.: Department of Rural Education, National Education Association, 1948. p. 131.

122. National Commission on the Intermediate Administrative Unit, NEA Department of Rural Education. Effective Intermediate Units--A Guide for Development. Washington, D. C.: the Department, 1955. 16 p.

123. National Committee for the Support of the Public Schools. The Reorganization of Local School Districts. Know Your Schools Fact Sheet No. 9. June 1967. 6 p.

124. National Education Association, Department of Elementary School Principals. The Elementary School Principalship--Today and Tomorrow. Twenty-seventh Yearbook. Washington, D. C.: the Department, 1948. Chapter 3, "School Enrollment and Building Facilities," p. 42-53.

125. National Education Association, Research Division. "Facts on American Education." NEA Research Bulletin 48: 35-41; May 1970.

126. National Education Association, Research Division. "Highest Degree Held by Teachers." NEA Research Bulletin 49: 56-57; May 1971.

127. National Education Association, Research Division. "Proposals for Public Education in Postwar America." NEA Research Bulletin 22: 39-78; April 1944.

128. National Education Association, Research Division. Rankings of the States, 1969. Research Report 1969-R1. Washington, D. C.: the Association, 1969. Table 113, p. 69.

129. National Education Association, Research Division. "Trends in City-School Organization, 1938 to 1948." NEA Research Bulletin 27: 1-29; February 1949. "Size of Schools and Classes," p. 35-37.

130. Nation's Schools. "What School Size is Best?" School Opinion Poll. Nation's Schools 54: 59; October 1954.

131. Nelson, Lester W. "Educational Opportunity and the Small Secondary School." Bulletin of the National Association of Secondary School Principals 48: 182-91; April 1964.

132. New Jersey Education Association. "Quality Education and Size." NJEA Review 42: 30, 32-35; May 1969.

133. New Jersey Education Association. "School District Reorganization." NJEA Review 43: 26-31; October 1969.

134. New Jersey State Department of Education, Bureau of School Planning Services. School Capacity. Educational Facilities Series. Trenton: the Department, 1969. 22 p.

135. Ohio Education Association. The Relationship Between Academic Achievement of Students in College and the Size of High School from Which They Were Graduated. Report of the Education Council. Columbus: the Association, 1959. p. 7-10.

136. Oliver, A. I. "How Big Should the Small School Be?" School and Society 69: 127-28; February 19, 1949.

137. Olsen, Edward G. "City, Suburbs, and Education." Vital Speeches 36: 253-56; February 1, 1970.

138. Opstad, Paul E. Non-Scholastic Factors Associated with Dropouts from Public Schools in Iowa. Doctoral dissertation. Iowa City: University of Iowa, 1958. 233 p. Abstract: Dissertation Abstracts 19: 472-73; No. 3, 1958.

139. Otto, Henry J. Elementary-School Organization and Administration. Third edition. New York: Appleton-Century-Crofts, 1954. "What Size School?", p. 617-21.

140. Overview. "Bigger...Better?" Overview 4: Part I, p. 18; May 1963. Part II, p. 18, June 1963.

141. Packard, J. C. "School District Size vs. Local Control." American School Board Journal 146: 9-10; February 1963.

142. Passow, A. Harry. Toward Better Schools: A Summary of the Findings and Recommendations of a Study of the Schools of Washington, D. C. New York: Teachers College, Columbia University, September 1967. 72 p.

143. Patterson, Harold D. Relationships Between Size of Secondary School and Selected Teacher Characteristics. Doctoral dissertation. Nashville, Tenn.: George Peabody College for Teachers, 1964. 96 p. Abstract: Dissertation Abstracts 25: 6348; No. 11, 1965.

144. Petrie, Thomas A. "Cooperatives--A Centralization Alternative." Planning and Changing 1: 161-65; January 1971.

145. Pittenger, Benjamin F. The Efficiency of College Students as Conditioned by Age at Entrance and Size of High School. Sixteenth Yearbook, Part II, National Society for the Study of Education. Bloomington, Ill.: Public School Publishing Company, 1919. 112 p.

146. Purdy, Ralph D. "Forces Affecting Local District Reorganization." Journal on State School Systems Development 1: 85-91; Summer 1967.

147. Purdy, Ralph D. "The Size Factor as Recommended by State Association for School Administrators in Ohio." Planning for School District Organization: Briefs of Position Papers. Lincoln, Nebr.: Great Plains School District Organization Project, May 1968. p. 146-47.

148. Rajpal, Puran L. A Study of Relationship Between Expenditure and Quality Characteristics of Education in Iowa Public Schools. Doctoral dissertation. Iowa City: University of Iowa, February 1967. 175 p. Abstract: Dissertation Abstracts 28: 443; No. 2, August 1967.

149. Riew, John. "Economics of Scale in High School Operation." Review of Economics and Statistics 48: 280-88; August 1966.

150. Robinson, Glen. "Principals' Opinions About School Organization." National Elementary Principal 41: 39-42; November 1961.

151. Rochester City School District. Size of High Schools in Large City School Districts, 1967-68. Rochester, N. Y.: Public Schools, January 1968. 3 p.

152. Rosenberg, Neal E. "School Size as a Factor of School Expenditure." Journal of Secondary Education 45: 135-42; March 1970.

153. Sayres, William C. Recurring Reasons for Resistence to Centralization. Albany: New York State Education Department, 1960. p. 3.

154. Schloerke, Wallace C. "Does Bigness Insure Quality?" Michigan Education Journal 42: 20-21; May 1, 1965.

155. Shapiro, David Franklin. Relationship of High School Size to Staff Relations. Doctoral dissertation. Stanford, Calif.: Stanford University, 1958. 236 p. Abstract: Dissertation Abstracts 18: 1324; No. 4, 1958.

156. Shoemaker, Byril. "Vocational-Technical Education and School District Organization." Planning for School District Organization: Selected Position Papers. Lincoln, Nebr.: Great Plains School District Organization Project (411 S. 13th St., 68508), June 1968. p. 119-51.

157. Smith, Clifford B. A Study of Optimum Size of Secondary Schools. Doctoral dissertation. Columbus: Ohio State University, 1960. 172 p.

158. Smith, Fay W. An Analysis of the Relationship of Size of Arkansas High Schools and the Achievement of College Bound Seniors. Doctoral dissertation. Conway: Arkansas State University, 1961.

159. Sollars, Ralph D. The Relationship of Elementary Schools to Operational Cost and Program Quality. Doctoral dissertation. Columbus: Ohio State University, 1962. 174 p. Abstract: Dissertation Abstracts 23: 3214; No. 9, March 1963.

160. Spaulding, Francis T. High School and Life. The Regents' Inquiry. New York: McGraw-Hill Book Company, 1938. 377 p.

161. Stephens, E. Robert, and Spiess, John. "What Does Research Say About the Size of a Local School District?" Journal on State School System Development 1: 183-99; Fall 1967.

162. Stone, Franklin D. Secondary Education and School District Organization. Lincoln, Nebr.: Great Plains School District Organization Project (411 S. 13th St., 68508), October 1967. 62 p.

163. Street, Paul; Powell, James H.; and Hamblen, John. "Achievement of Students and Size of School." Journal of Educational Research 55: 261-66; March 1962.

164. Strong, Will R. An Analytical Comparison of Large and Small Schools with Respect to Achievement of Pupils and Attitudes of Teachers. Doctoral dissertation. Bloomington: Indiana University, 1964. Abstract: The Reporter 16: 6-9; May 1965 (published by the Central New York School Study Council, Syracuse University).

165. Swanson, Austin D. The Effect of School District Size Upon School Costs: Policy Recommendations for the State of New York. Buffalo, N. Y.: Committee on School Finance and Legislation, Western School Study Council, State University of New York, 1966. 42 p.

166. Theophilus, Wadhawa Singh. Relationship Between Size of School and Expenditures and Quality of Education in Elementary Schools. Doctoral dissertation. Ames: Iowa State University, 1954.

167. Thornberg, Lester H. "College Scholarship and Size of High School." School and Society 20: 189-92; August 9, 1924.

168. Trump, J. Lloyd. How Large Should a School Be? Mimeographed statement distributed by the National Association of Secondary School Principals, 1963. 2 p.

169. Tulare County Department of Education. What Are the Facts About Unification? Research Brief No. 56. Visalia, Calif.: the Department, February 1964. 8 p.

170. Turner, Claude C., and Thrasher, James M. School Size Does Make a Difference. San Diego, Calif.: Institute for Educational Management (8655 Pomerando Road, 92128), 1970. 44 p.

171. Turner, Harold E. "The Relationship of Curriculum to School District Organization." Planning for School District Organization: Selected Position Papers. Lincoln, Nebr.: Great Plains School District Organization Project (411 S.13th St., 68508), June 1968. p. 59-85.

172. Tyson, James Carrole. A Comparative Study of Teacher-Pupil Relationships in Small and Large High Schools. Doctoral dissertation. Charlottesville: University of Virginia, 1957.

173. U. S. Department of Health, Education, and Welfare, Office of Education. Digest of Educational Statistics, 1970. Washington, D. C.: Government Printing Office, 1970. 140 p.

174. U. S. Department of Health, Education, and Welfare, Office of Education. "Public Secondary Schools." Statistics of Education in the United States. 1958-59 Series, No. 1. Washington, D. C.: Government Printing Office, 1961. 52 p.

175. U. S. Department of Health, Education, and Welfare, Office of Education. Statistical Summary of State School Systems, 1955-56. Circular No. 543. Washington, D. C.: Government Printing Office, 1958. p. 3.

176. U. S. Department of Health, Education, and Welfare, Office of Education. Statistics of Local Public School Systems--Schools, Pupils, and Staff, Fall 1968. Washington, D. C.: Government Printing Office, 1970. 146 p.

177. Vars, Gordon F., editor. Guidelines for Junior High and Middle School Education: A Summary of Positions. Washington, D. C.: National Association of Secondary School Principals, 1966. "Size," p. 21-22.

178. Vincent, William S. "New Light on the Size Question." IAR Research Bulletin 6: 4-8; February 1966.

179. Wakefield, Howard E.; Miller, Donald M.; and Wolfe, Richard G. Size Factors and Non-Dollar Costs of Secondary Schools, Phase I. Madison: University of Wisconsin, April 1968. 220 p.

180. Washington State Planning Council. A Survey of the Common Schools of Washington. Olympia, Wash.: the Council, 1938. 128 p.

181. Weaver, Charles H. An Investigation of the Influence of Size on the Quality of the High School. Doctoral dissertation. Chapel Hill: University of North Carolina, 1961. 237 p. Abstract: Dissertation Abstracts 23: 516; No. 2, 1962.

182. Whitt, Robert L. "Structuring Education for Business Management." Planning for School District Organization: Selected Position Papers. Lincoln, Nebr.: Great Plains School District Organization Project (411 S. 13th St., 65808), June 1968. p. 204-24.

183. Wicker, Allan. "Cognitive Complexity, School Size, and Participation in School Behavior Settings: A Test of the Frequency of Interaction Hypothesis." Journal of Educational Psychology 60: 200-203; June 1969.

184. Wilbur, Thomas P. "School District Reorganization: Still a Concern." Central Ideas 2-4; October 1968. (Published by the Central School Boards Committee for Educational Research, 525 W. 120th St., New York, N. Y. 10027.)

185. Wiswasser, James R. "Educational Efficiency Can't Be Measured in Dollars." Ohio Schools 44: 13-14; February 1966.

186. Woodham, William J. The Relationship Between the Size of Secondary Schools, the Per Pupil Cost, and the Breadth of Educational Opportunity. Doctoral dissertation. Gainesville: University of Florida, February 1951. p. 185.

187. Woods, Thomas E. Relationship of High School Size to Curricular Offering. Doctoral dissertation. Stanford, Calif.: Stanford University, 1957. 152 p. Abstract: Dissertation Abstracts 18: 481-82; No. 2, 1958.

188. Wright, Grace S. Enrollment Size and Educational Effectiveness of the High School. U. S. Department of Health, Education, and Welfare, Office of Education Circular No. 732. Washington, D. C.: Government Printing Office, 1964. 21 p.

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